PRELIMINARY GEOLOGIC AND GEOTECHNICAL ENGINEERING INVESTIGATION, UPTOWN NEWPORT, 4321 JAMBOREE ROAD, NEWPORT BEACH, CALIFORNIA

By: Ginter & Associates
For: UPTOWN NEWPORT, LP
8951 Research Drive,
Irvine, CA 92618

Project No.: 116-02
Date: November, 2011

PRELIMINARY GEOLOGIC AND GEOTECHNICAL ENGINEERING INVESTIGATION,
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Project # 116-02 November, 2011

Prepared for:

Uptown Newport, L.P.

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Project # 116-02
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November 17, 2011

Project # 116-02

Attn: Mr. Brian Rupp
Project Manager

Subject: **Preliminary Geologic and Geotechnical Engineering Investigation, Uptown Newport 4321 Jamboree Road, Newport Beach, California**

References: See attached List of References

1.0 INTRODUCTION:

1.1 Purpose:

This report has been prepared to provide a preliminary geologic and geotechnical evaluation for the Uptown Newport development site in the city of Newport Beach, California.

The document presents the data and analyses regarding the geology, soil properties, hydrogeology, geologic hazards and associated mitigation measures and general grading and foundation considerations and incorporates the findings of and supersedes previous investigation reports by other geotechnical firms.

1.2 Site Location and Description:

The subject site is rectangular in shape located northeast of the intersection of Jamboree Road and MacArthur Blvd. as shown on Figure 1. Uptown Newport Planned Community Development Plan, hereinafter referred to as "Uptown Newport PC", is a planned residential community of 1,244 high-density

residential units and 11,500 square feet of retail uses located on 25 acres located at 4311-4321 Jamboree Road in Newport Beach, California, within the City's Airport Area. Local access to the project site is provided by Jamboree Road to the southeast, Birch Street to the northwest, Von Karman Avenue to the northeast and MacArthur Boulevard to the southwest. The site is immediately bounded by Jamboree Road to the southeast, a fast food restaurant to the northeast and by existing office development within the Koll Center to the northwest and southwest.

Uptown Newport is in close proximity to numerous regional transportation corridors and amenities. Uptown Newport is located near regional open space including Upper Newport Bay, Mason Regional Park in Irvine and San Joaquin Freshwater Marsh. It is also located near the University of California-Irvine (UCI) with immediate adjacency to the UCI North Campus opposite the Subject Property on Jamboree Road. Uptown Newport has convenient access to the 405, 73 and 55 Freeways via MacArthur Boulevard and Jamboree Road.

The Uptown Newport site was originally developed as part of the Koll Center, and has been used for manufacturing telecommunications equipment and computer chips since the 1970's, and is currently used for office and computer chip manufacturing. The property currently includes a single-story office building and a two- and three-story semiconductor chip manufacturing facility. The property is currently accessed via two entries on Jamboree Road, a drive access via Birch, and a drive access via Von Karman Avenue. The Uptown Newport project will include redevelopment of the 25-acre property into a high-density mixed use residential project. Up to 1,244 residential units, 11,500 square feet of retail, and 2 acres of park space are planned as part of the project. The plan calls for the approximate 25-acre site to be configured with a pattern of streets and development areas that provide a pedestrian-friendly environment, with strong connectivity to adjacent commercial/office areas.

Residential buildings may include low-rise row-houses; 4 and 5-story apartments or condominiums featuring a range of floor plan sizes and configurations. Mid-rise to high-rise buildings are also possible.

The project is anticipated to be developed in two primary phases. Phase 1 will include demolition of the existing single-story office building at 4311 Jamboree (the "Half Dome Building"), and development of the westerly portion of the property, including the frontage along Jamboree Road. Phase 1 development will include approximately 680 units on approximately 12.85 acres, and is projected to commence in mid-2014 with build-out of Phase 1 through 2017. Phase 2 will include demolition of the existing Jazz Semiconductor fabrication building (the "Jazz Building"), and development of approximately 564 units on 12.20 acres on the easterly portion of the property. Development of Phase 2 is

Figure 1
SITE LOCATION MAP

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UPTOWN NEWPORT
4.25.11

SITE BOUNDARY

EXISTING CONDITIONS
CONTEXT AERIAL PHOTOGRAPH

SCALE: 1"=200' 0 100' 200' 400'

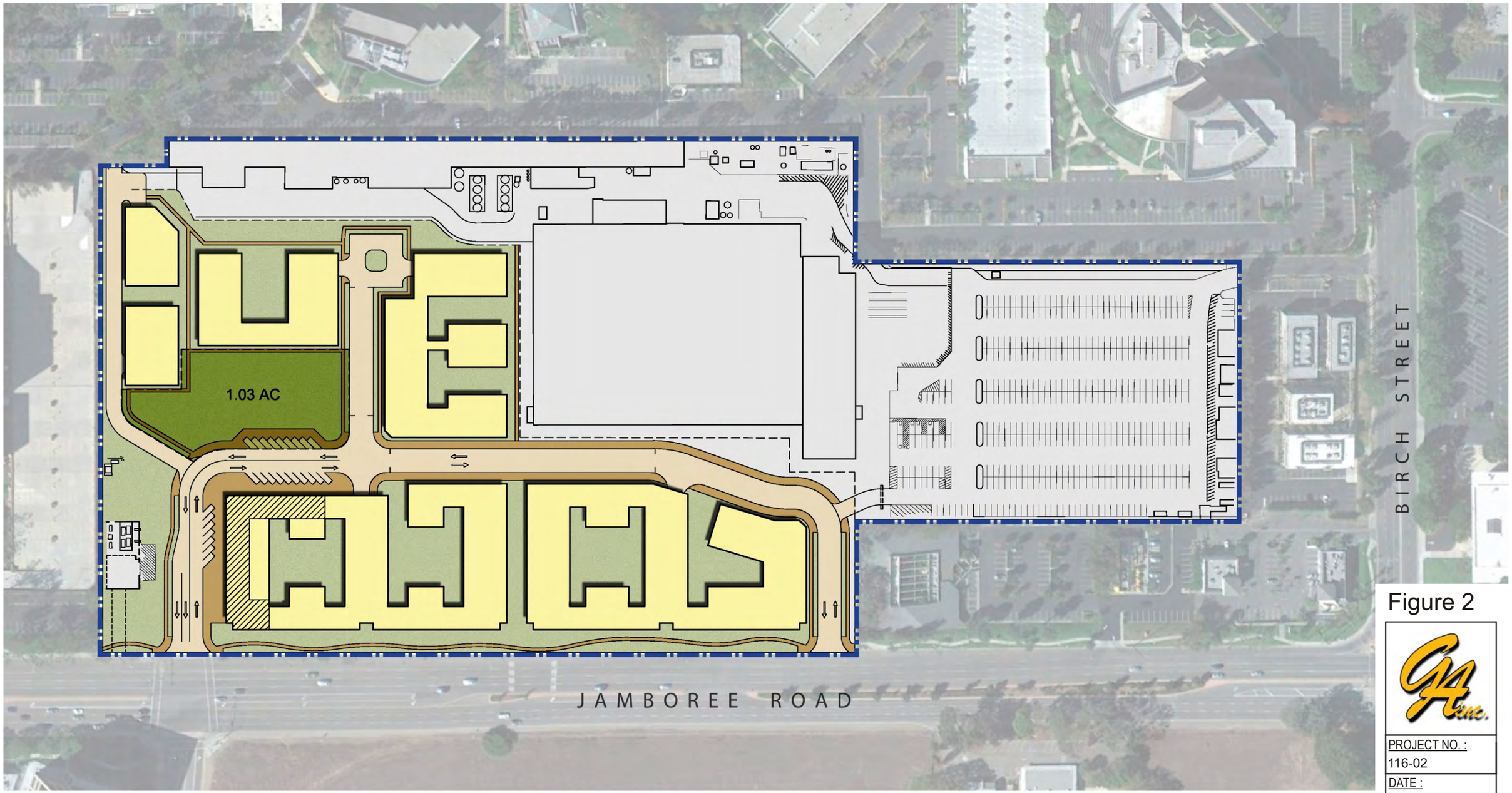

Figure 2

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Master Plan - Phase 1
Uptown Newport
Uptown Newport LP

Developable Area: 9.33 ac
Park Area: 1.03 ac
Right of Way Area: 2.49 ac
Total Site (Phase 1): 12.85 ac

0' 50' 100' 200'
August 17, 2011

Figure 3

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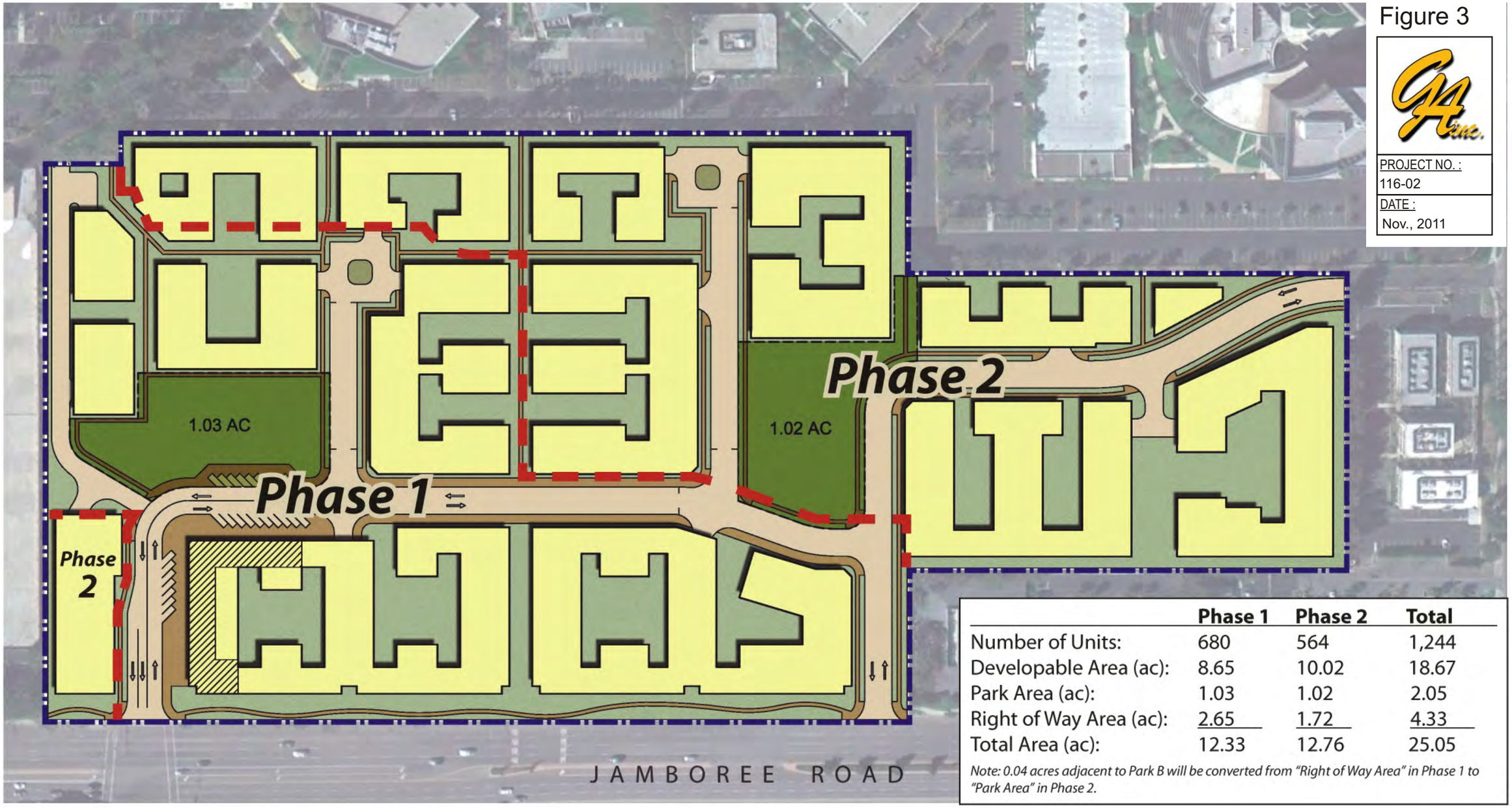

	Phase 1	Phase 2	Total
Number of Units:	680	564	1,244
Developable Area (ac):	8.65	10.02	18.67
Park Area (ac):	1.03	1.02	2.05
Right of Way Area (ac):	2.65	1.72	4.33
Total Area (ac):	12.33	12.76	25.05

Note: 0.04 acres adjacent to Park B will be converted from "Right of Way Area" in Phase 1 to "Park Area" in Phase 2.

0' 100' 200' 400'

Phasing Diagram

Uptown Newport

Uptown Newport LP

anticipated to commence in the spring of 2017. Timing for Phase 2 development is contingent on the existing lease of the Jazz Building, which is currently set to expire in March 2017.

1.2 Previous Investigations:

Maurseth-Howe-Lockwood & Associates performed the original geotechnical investigation for development of the existing facilities in 1967. This consisted of a field investigation involving drilling and sampling of 96 borings to depths ranging from 20 ft. to 40 ft. They reported relatively heterogeneous subsurface conditions consisting of a silty-clay top soil overlying competent, interbedded sands, silts and clays of varying thickness. Groundwater was encountered between 15 ft. and 30 ft. below existing grade. Grading recommendations indicated 4 to 8 ft. of cut and fill were required in order to prepare the site for construction of building pads. An allowable bearing capacity of 4,000 pounds per square foot was recommended for design of spread footings established in native or engineered fill soils.

Dames & Moore performed a preliminary geotechnical investigation for the seismic retrofit of Buildings 503 and 505 summarizing their findings and recommendations in the report dated April 28, 1995. Two borings were drilled and sampled to 51½ ft. which encountered stiff to very stiff clays with inter-bedded sand and silty sands. Groundwater was encountered between 16 ft. and 20 feet.

Dames & Moore performed a geotechnical investigation for the 3-story addition to the east of Building 503. Their summary of findings and recommendations were summarized in a report dated April 8, 1996 (not available for review).

On December 24, 1996, Dames & Moore compiled a report titled “Geotechnical Investigation – Phase I, Building 503 Base Isolation Project”. The proposed project involved underpinning of the building foundations, excavation of the soils below the building, and installation of base isolation devices below the existing footings. This report evaluated the subsurface conditions, conceptual design of foundation underpinning,, and planning for the pilot program and related testing. Their subsurface exploration involved drilling and sampling 15 borings inside Building 503 and 9 borings outside this building to depths of 15 ft. to 100 ft. using hand-auger equipment, limited access hollow-stem auger rig and truck-mounted hollow-stem auger rig.

Solvents were detected in soil at the site in January 1984 during an investigation of a broken water line northwest of Building 503. The environmental consultant, Jacob & Hefner Associates, Inc. (JHA), have prepared various reports regarding

groundwater monitoring and sampling and soil and soil vapor investigations. Pertinent geotechnical data from these investigations are included in this report.

2.0 SCOPE OF WORK

The scope of work for this evaluation included the following:

- Review of regional and local geologic literature and maps from federal, state, county and local agencies
- Review of site geotechnical and environmental investigations and reports by others
- Review and transfer pertinent geologic data from previous investigations to the new plan
- Subsurface investigation consisting of hollow-stem auger borings and cone penetrometer (CPT's) including logging and soil sampling
- Laboratory analyses on select soil samples
- Liquefaction analyses
- Provide current CBC seismic design parameters
- Geologic hazards evaluation
- Preparation of this report, incorporating pertinent data from the previous investigations and providing preliminary conceptual site grading recommendation and foundation considerations pertinent to the currently planned development

3.0 REGIONAL GEOLOGY

3.1 Geomorphic Setting:

The subject site is situated near the northeastern edge of the Newport Mesa, a flat-topped platform deeply dissected by stream erosion (Figure 4). San Diego Creek is located just east of the site and is one of the major drainage courses that transects the mesa. Originally formed by wave abrasion, this platform, which is also called a marine terrace, is now elevated well-above the water at an approximate elevation of 50 feet above mean sea level (msl) and is bounded by steep bluffs along the shoreline.

SOURCE: Morton & Miller, 1981
*SEE FIGURE 4a FOR LEGEND

Scale≈1:48,000

Figure 4
REGIONAL
GEOLOGIC MAP

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EXPLANATION

Qls
Qls ?
Landslides
= Bedrock landslides
? = Probable bedrock landslides
= Possible bedrock landslides

Qlh
La Habra Formation

Qch
Coyote Hills Formation

Qsp
San Pedro Formation

Tfu
Tfl
Fernando Formation
Tfu = Upper member
Tfl = Lower member

Tp
Tpsc
Tpy
Tps
Tplv
Puente Formation
Tp = Puente Formation undifferentiated
Tpsc = Sycamore Canyon Member
Tpy = Yorba Member
Tps = Soquel Member
Tplv = La Vida Member

Tem
Tema
Temt
Temb
El Modeno Volcanics
Tem = El Modeno Volcanics undifferentiated
Tema = andesite
Temt = tuffs and tuff breccia
Temb = basalt

Ta
Td
Intrusive Volcanics
Ta = intrusive andesite
Td = diabase

Tvs
Vaqueros and Sespe Formations undifferentiated

Qac
Qb
Qac = Alluvium and colluvium
Qb = Beach sediments

Qt
Qtm
Terrace deposits
Qt = Nonmarine terrace deposits
Qtm = Marine terrace deposits

Tn
Niguel Formation

Tcs
Tct
Tco
Capistrano Formation
Tcs = siltstone facies
Tct = turbidite facies
Tco = Oso Member

Tm
Monterey Formation

Tso
San Onofre Breccia

Tt
Ttp
Ttlt
Ttb
Topanga Formation
Tt = Topanga Formation undifferentiated
Ttp = Paulerino Member
Ttlt = Los Trancos Member
Ttb = Bommer Member

Tv
Vaqueros Formation

Ts
Sespe Formation

Tsa
Santiago Formation

Tsi
Silverado Formation

Kw
Kwp
Kws
Kwst
Williams Formation
Kw = Williams Formation undifferentiated
Kwp = Pleasants Sandstone Member
Kws = Schulz Ranch Member
Kwst = Starr Member

Klh
Klhsc
Klb
Ladd Formation
Klh = Holz Shale Member
Klb = Baker Canyon Member
Klhsc = Holz Shale Member
sc = sandstone and conglomerate

Kt
Trabuco Formation

Kgt
Granodiorite and tonalite, undifferentiated

Kgwm
Woodson Mountain Granodiorite

Kgb
Bonsall Tonalite

Kgsm
San Marcos Gabbro

Jsp
Santiago Peak Volcanics

Jbc
Bedford Canyon Formation

Holocene
Pleistocene
QUATERNARY
Pliocene
Miocene
Eocene
Paleocene
TERTIARY
UPPER CRETACEOUS
JURASSIC

SYMBOLS

Contacts
Queried where inferred.

U
D
18
Faults
Dashed where approximately located, dotted where concealed, queried where conjectural. D, downthrown side; U, upthrown side. Arrow indicates dip of fault plane. Barbs are on upper plate of thrust faults.

22
Strike and dip of beds

12
Approximate or generalized strike and dip of beds

42
Strike and dip of overturned beds

Horizontal beds

Vertical beds

Anticlinal fold
Long arrow indicates direction of plunge

Synclinal fold
Long arrow indicates direction of plunge

Mud or debris flow path
Width not definable

Mud or debris flow path
Definable boundaries

Qac
Qtm
Qac thinly ; overlies Qtm

Prospect or mine

Pit

- Mineral producer, active in 1973
- Mineral producer, active one or more years 1953-1972.
- Mineral producer, active one or more years prior to 1953; inactive since 1953
- X Mineral deposit, prospect, or borrow pit. (This includes all deposits with n significant production or, in the case of borrow pits, contain low-value materia widely available).
- Limits of oil and gas fields (California Division of Oil and Gas, 1972).
- Quadrangle corner of U. S. Geological Survey 7½ minute maps.

Figure 4a
REGIONAL GEOLOGIC LEGEND

GA inc.

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During development of this site (1967-1969), the area was cut and filled with local materials.

3.2 Regional Geologic Setting:

The subject site is located at the southeastern edge of the Los Angeles Basin near San Diego Creek, which separates the basin from the Peninsular Ranges geomorphic province (Figure 5) and the San Joaquin Hills, a major structural uplift.

The Newport Mesa consists of several hundred feet of marine terrace deposits including clays, silts, sands and gravels overlying a suite of Tertiary sedimentary bedrock units, which in turn overlay Cretaceous granitoid basement.

3.3 Tectonic Setting:

Uptown Newport PC is located in a structurally complex and tectonically active region of southern California. The geologic complexity of the region is due in part to its position between the geologic/geomorphic provinces of the Transverse Ranges and Peninsular Ranges (Figure 6). The Transverse Ranges border the Peninsular Range to the north and form the northern boundary of the Los Angeles Basin. The Transverse Ranges are characterized by east-west trending faults with histories of seismic activity within the Los Angeles Basin. In contrast, the Peninsular Ranges are traversed by dominant northwest trending faults consisting of the San Andreas Fault, San Jacinto Fault, Newport-Inglewood Fault and the Whittier-Elsinore Fault. These faults are all major fault systems capable of producing magnitudes up to 7.5 on the Richter Scale.

Faults which potentially could have the greatest effect on the site include the Newport-Inglewood fault and its offshore extension, the Whittier-Elsinore Fault (approximately 28 km. from the site), and the Palos Verdes Fault (27 km. from the site). Evidence for the location of these faults is found through surface traces, historic seismicity and micro-seismic activity. The San Andreas Fault, although capable of producing very large earthquakes with ground shaking lasting about two minutes or more, does not dominate the seismic hazard for this site because of the distance from it (76 km.). Rather, due to its proximity to the site, the Newport-Inglewood Fault zone is the most significant contributor to ground shaking hazard.

In addition to these active faults, blind thrust faults have also been postulated in the Los Angeles Basin. The 1994 Northridge earthquake occurred on this type of fault. Several major blind thrust systems have been identified; the Compton Thrust System, consisting of three segments (Baldwin Hills, Central and Santa Ana) is closest to the site. The southern edge of the Santa Ana segment is

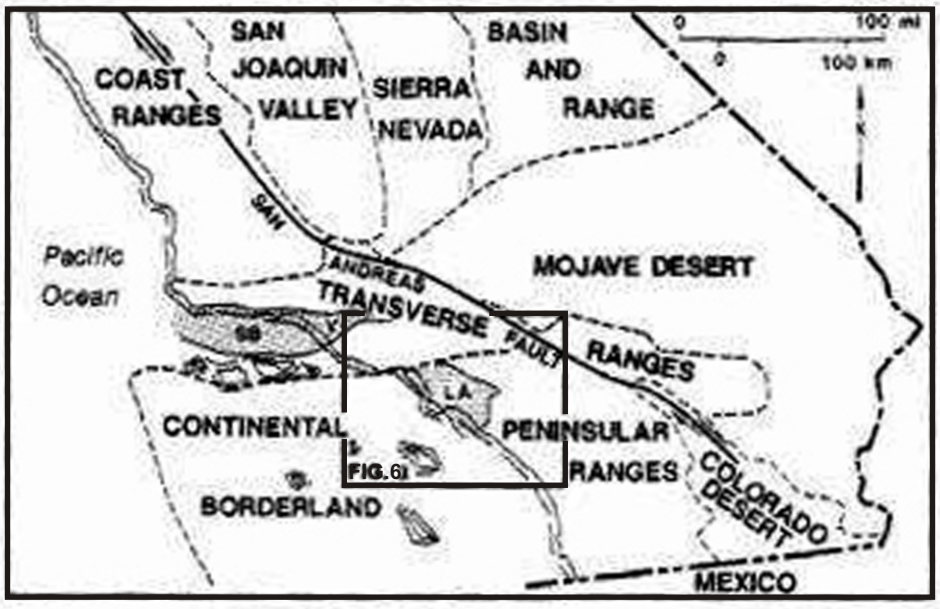

Figure 5. Geologic/geomorphic provinces of southern California. Stippled aresa are the Los Angeles (LA) and Ventura-Santa Barbara (V, SB) basins, Rectangle shows area of Figure 6.

ADAPTED FROM WRIGHT (1991)

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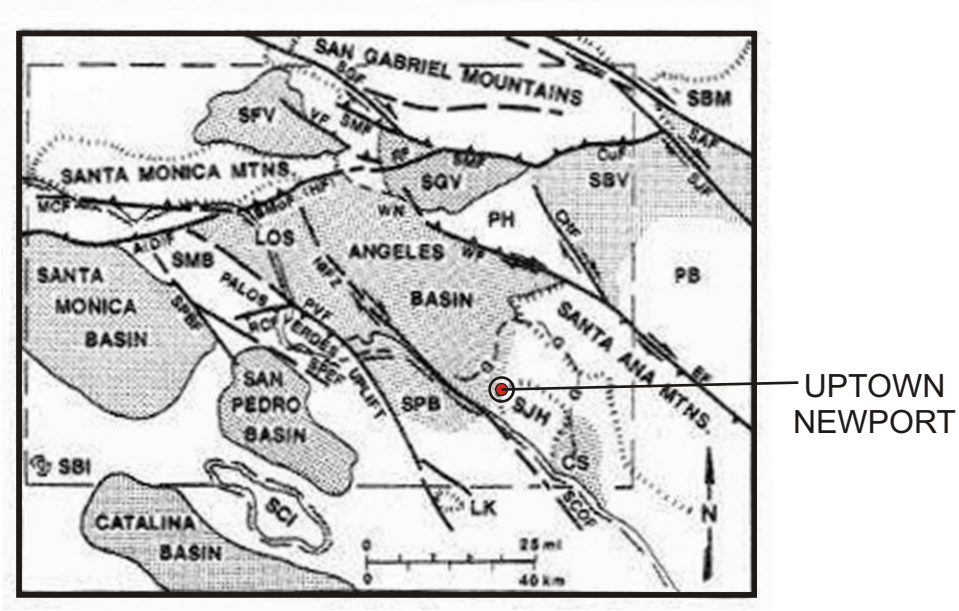

Figure 6. Los Angeles basin and vicinity, showing principal geomorphic and tectonic features. Stippled areas are Quaternary basinal areas. A(D)F= Anacapa (Dume) fault, CS= Capistrano syncline, CHF= Chino Hingeline fault, CuF= Cucamonga fault, EF= Elsinore fault, HF= Hollywood fault, LK= Lasuen Knoll, MCF= Malibu Coast fault, NIFZ= Newport-Inglewood fault zone, PB= Perris block, PH= Puente (and San Jose) Hills, PVF= Palos Verdes fault, RCF= Redondo Canyon fault, RF= Raymond fault, SAF= San Andreas fault, SBI= Santa Barbara Island, SBM= San Bernardino Mountains, SBV= San Bernardino, Valley, SCI= Santa Catalina Island, SCOF= South Coast Offshore fault, SFV= San Fernando Valley, SGF= San Gabriel fault, SGV= San Gabriel Valley, SJF= San Jacinto fault, SJH= San Joaquin Hills, SMB= Santa Monica Bay, SMF= Sierra Madre fault, SMoF= Santa Monica fault, SPB= San Pedro Bay, SPBF= San Pedro Basin fault zone, SPEF= San Pedro Escarpment fault, VF= Verdugo fault, WF= Whittier fault, WN= Whittier Narrows. –G– illustrates approximate limits of San Joaquin Hills gravity high.

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inferred to be located beneath the site, but uncertainty associated with the recurrence of large earthquakes on this segment or others is great.

The major tectonic feature of the area is the Newport-Inglewood fault zone (NIFZ), which trends N45°W and extends nearly 40 miles from Culver City southeast to Newport Beach (Figure 6). It is located approximately 7 kilometers to the southwest of the site. Active Tectonism was made obvious by the 1920 Inglewood earthquake (est. M_L=4.9) and the 1933 Long Beach earthquake ($M_{L=}$6.3).

Geologic data from oil wells in the Newport and West Newport oil fields indicate a complexly faulted zone southwest of the NIFZ and a north-dipping monocline northeast of it; West Newport's offshore production is from a west-trending anticline on the Offshore Newport ridge (C. Wright, 1991)

South of the Newport field, the alignment of the NIFZ coincides with a steep submarine scarp having 1200-1500 feet of vertical relief. Deep-penetration seismic reflection profiles and other geophysical data (Barrows, 1974) have revealed a feature called the South Coast Offshore Fault, which follows that submarine scarp. This is considered by most to be the continuation of the NIFZ.

Movement along the NIFZ is predominately right-lateral slip with some vertical components that have formed as a series of en echelon faults. Data indicates over 6 miles± of right-lateral offset and 3500 feet to 5,000 feet± of vertical offset.

The Pelican Hills Fault is located approximately 2 miles southwest of the site and is overlapped by Pliocene beds west of the site (Figure 4). implying that its last movement occurred in Late Miocene time. However, data cited by Ziony and Yerkes (1985) suggest that the Pelican Hills Fault has been active during late Quaternary time. The California Geologic Survey (CGS) also designates this fault as Late Quaternary (potentially active).

The San Joaquin Hills area to the south (Figure 4) appears to be defined by a combination of fault blocks, each with homoclinal structure, that form overall anticlinal-synclinal patterns, essentially without folding (Bender, 2000). The Shady Canyon Fault is the dominant fault of these hills and nearly bisects the area in a northwesterly direction and has a stratigraphic throw of approximately 5,000 feet (Morton et al., 1974). The Shady Canyon Fault is nearly vertical and separates the area into an up-thrown block exposing early Miocene and older rocks on the east, and a down-thrown block exposing rocks of middle Miocene and younger age to the west (Figure 4) implying a middle Miocene age of faulting.

Its projection to the north where it is concealed by basin sediments would be approximately 3 miles east of the site.

Prior to the construction of the UCI campus to the south of the subject site, Petra Geotechnical, Inc., in 1991, performed a fault investigation that discovered what they designated as the UCI Campus Fault. They concluded that the fault is potentially active and is capable of generating earthquakes up to 7.5 in magnitude. UCI adopted a Restricted Use Zone (RUZ), which is 50 feet on either side of the UCI Campus Fault. No full-time occupied structures can be placed within the RUZ unless a focused project specific analysis is conducted.

3.4 Aerial Photo Lineament Analysis:

A collage of over 50 photographs from 1927 through 1973 was reviewed from the archives of UC Santa Barbara and Continental Aerial Photo, Incorporated. The following are those selected for detailed analysis:

a. From UC Santa Barbara

FLIGHT #	*FRAME #*	*DATE*
113	1092, 1093, 1094	1927
AXK-1K	44, 45	1952

b. From Continental Aerial Photo, Inc.

AXK-1K	45, 46	11/18/52
261-3-15	96, 97	3/25/59
I	40, 41	3/1/67
9C2	7	1/24/67
94	13, 14	6/28/71
132-6	14, 15	10/29/73

The lineament analysis was performed in order to aid the determination for the presence and/or absence of active faults transgressing the subject site. In order to qualify the lineament designations, the following criteria were used:

LINEAMENT DESIGNATION	CHARACTERISTICS
Moderate	usually traceable for over a one mile distance and can be associated with offset stream drainages, changes in topography and resistant beds; can be related to faulting
Weak	usually traceable for less than one mile; commonly associated with tonal variations caused by variations in lithology and vegetation; possibly related to Pre-Holocene faulting

The results of our analysis are presented in Figure 7.

Legend

MODERATE LINEAMENT

WEAK LINEAMENT

4 LINEAMENT NUMBER

Figure 7
AERIAL PHOTO
LINEAMENT
ANALYSIS

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Lineament 1 is relatively well-pronounced and is probably associated with the Pelican Hills Fault, southeast of the site. It is not distinguishable through the Newport Mesa. Lineaments 2 through 4 are sub-parallel to Lineament 1 and are probably associated with older faults, differential erosion and/or lithologic differences in bedrock lithologies. None of the lineaments can be traced across the Newport Mesa.

3.5 Regional Hydrogeology:

The site is located within the San Diego Creek watershed which drains to the southwest through an artificial channel into Upper Newport Bay. Two ornamental lakes, which are flood control basins, are located northwest of the site. A subsurface sand drain extends from north of Building 503 to these lakes (JHA, 2010).

The site is underlain by a portion of the Coastal Plain hydrogeologic unit and is positioned at the boundary of the Orange County Main Basin to the northwest and the Irvine Groundwater Basin to the northeast. A shallow aquifer system (15 ft. – 30 ft. to 35 – 45 ft. bgs.) consists of perched water-bearing units within the Pleistocene marine terrace deposits. Deep aquifers in this area are reported to consist of the Alpha, Beta and Lambda Aquifers, which are part of the late Pleistocene age Lakewood Formation.

4.0 SITE GEOLOGY CONDITIONS

4.1 Stratigraphic Framework:

The geologic units present within the site can be characterized as generally stiff to very stiff silty to sandy clay fill soils overlying native sands, silts, clays and gravels of marine terrace deposits to the depths explored. The site was graded in 1967-1969 utilizing conventional cut and fill techniques.

4.2 Surficial Deposits

4.2.1 Artificial Fill (Af)

Various landscape and open space areas have been re-worked to provide soils for vegetation in the form of shrubs, trees and grass. These areas are generally 2-3 feet thick adjacent to existing structures.

Borings by Dames & Moore within Building 503 indicate a floor slab 7 to 8.5 inches thick underlain by a visqueen sheeting and 4-6 inches of aggregate base. All areas have lime-treated soils up to 4 feet thick under the slab.

4.2.2 Compacted Artificial Fill (Caf):

The subsurface investigation for this evaluation involved drilling in accessible areas of the parking lots and driveways. In general, Drill Logs (Appendix II) indicate a 12" thick section of asphalt concrete and base material overlying 2-5 feet± of compacted artificial fill. This unit consists of reddish brown to brown sand, silty sand, sandy clay, sandy silt and clayey sands. Thicknesses vary from 2-24 feet (Dames and Moore, 1995).

4.2.3 Terrace Deposits (Qtm):

Underlying the engineered fills, native terrace deposits consisting of crudely stratified sequences of sand, silts, clays and gravels occur to the depths explored. See Appendices II and VI for more detailed descriptions.

The thickness of this unit is considered to be approximately 100-200 feet.

4.1 Bedrock Units (Ql):

The Lakewood Formation named by Thomas (1961) lies at depth beneath the marine terrace deposits and is reported by others as consisting of well-sorted gray, poorly cemented sands inter-bedded with silty fine-grained sands. Lack of well data in this area indicates little information is available for this unit in the Upper Newport Bay area.

5.0 SITE GROUNDWATER CONDITIONS

Jacob & Hefner Associates, Inc. (2010) have divided the sediments underlying the site, in descending order by depth, into the following hydrogeologic units:

- Unsaturated Zone (0 to 15-30 feet bgs)
- Shallow Groundwater Zone (15-30 to 35-45 feet bgs)
- Aquitard A (45-65 feet bgs)
- Intermediate Groundwater Zone (65-100 feet bgs)
- Aquitard B (100-140 feet bgs)

- Lower Groundwater Zone (140-225 feet bgs)
- Aquitard C (top of zone at 225 feet bgs)

Based on a review of Jacob & Hefner's well monitoring data, the Intermediate Groundwater Zone from 1989 to 2010 has lowered by as much as 25 feet, in general.

The boring logs by G&A (2011, Appendix II) indicate these borings only penetrated the Shallow Groundwater Zone. Our borings also indicate this Shallow Groundwater Zone is not present over the entire site and that local intermittent and perched conditions exist as shown in Cross-Section A-A' (attached).

6.0 GEOTECHNICAL CONDITIONS

This report addresses various geotechnical engineering factors which should be considered during the design and grading of the proposed development.

The development of the site is considered feasible provided the geologic and geotechnical engineering issues are taken into consideration in the design and construction of the plan and appropriate measures, as recommended herein, are implemented.

6.1 Soil Properties:

The site, in general, consists of marine terrace and bay deposits to the depths explored (101 feet bgs). These sediments vary from fine to medium grained sands with minor gravels, silty sans, sandy clays and clays. They are crudely stratified with lenses and pods interspersed indicative of terrace and backbay environments. A distinctive olive-green to olive-gray clay to silty clay horizon is present throughout the site commonly found at an approximate depth of 30 feet bgs, as depicted in Section A-A' (attached). This unit contains occasional bivalve mollusk shell fragments and is very moist and stiff.

These terrace deposits are well-consolidated and suitable for support of the proposed development.

6.2 Expansive Soils:

In general, the fine to medium-grained sands with some gravels will exhibit low expansion indices. The silty clays, sandy clays and clays will exhibit medium to high expansion indices. Three expansion index tests (Appendix IV) performed on sandy to silty clays indicate medium to high expansion indices.

During grading operations in the upper 5 ft.±, the mixing and placement of various on-site soils as compacted fills should reduce this hazard to a less than significant impact.

Additional testing should be performed at a more refined plan stage of grading plans for the proposed development.

6.3 Corrosive Soils:

Future Corrosion tests (chloride, sulfate, resistivity, and pH) of the sub-grade soils should be performed near the completion of grading. A Corrosion Engineer should be retained to evaluate the corrosion potential of as-graded site soils on under-ground metallic installations and to develop appropriate recommendations and mitigation measures, if required.

6.4 Removals:

Demolition of the existing structures and utilities will be challenging, especially since the Jazz Semiconductor Building had a seismic retrofit/upgrade. This retrofit included helical test pile installations up to 14 inches in diameter. All footings will require removal and over-excavation laterally may be required to minimize differential settlement for the proposed structures.

Removals in driveways, parking lots and landscape areas are expected to be 5 ft. in depth with possible deeper localized areas.

In order to reduce potential adverse settlement and subsidence on the site, we recommend for current planning purposes that the uppermost 5 ft. of materials below planned finish grade be removed and replaced with approved compacted (90% relative compaction) engineered fill. If deleterious materials are exposed at the base of the general over-excavation, consideration should be given to remove such debris and replace with acceptable materials in accordance with the Project Geotechnical Engineer's recommendations. No oversize materials (greater than 6" in diameter will be allowed in this zone).

6.5 Shrinkage:

It is estimated that site soils will shrink on the order of 3 to 5 %.

7.0 POTENTIAL GEOLOGIC/SEISMIC HAZARDS, SIGNIFICANCE AND MITIGATION MEASURES

The following is a summary of the principal geologic and geotechnical engineering conditions that occur in the study area and the potential impact that each of the conditions may have on the site which is rated using a qualitative scale of less than significant, potentially significant, and significant. The assessment was performed by

comparing the severity of the impact at the site with the range of hazard severity generally representative of southern California

7.1 General:

The geologic hazards in the general area of the site are those primarily associated with landslides, flooding and earthquakes. Due to the topography and other factors, landsliding is not a hazard for the subject site. The potential for flooding with respect to the subject site is considered remote, since the proposed development envelope is outside the 100-year flood plain.

The site is similar to most of southern California with respect to hazards associated with earthquakes. A detailed seismic hazard evaluation is present in Appendix I. The study reviewed the hazards associated with earthquakes that include primary hazards (i.e. ground shaking, surface rupture) and secondary hazards (i.e. liquefaction, seismic settlement, tsunamis, seiches) and the effect of these on the subject site. The major cause of damage from earthquakes is the shaking from earthquake waves and the much less frequent damage due to actual displacement or fault movement beneath a structure. The shaking would occur not only immediately adjacent to the earthquake epicenter, but within areas for many miles in all directions.

The removal of the unsuitable materials and replacement with engineered compacted fill for the proposed structures and structural design based on the seismic parameters recommended herein will help mitigate the primary and secondary hazards.

7.2 Fault Induced Ground Rupture:

The site is not within an Alquist-Priolo Earthquake Fault Zone for surface fault rupture hazards (Hart, 1997). Also, no faults or fault-related features were observed during our subsurface investigations and field reconnaissance. Based on the available geologic data, active, or potentially active faults, with the potential for surface fault rupture at the site during the design life of the proposed development is considered low and a less-than significant impact.

7.3 Ground Shaking:

Based on the seismic hazard anaysis for the subject site presented in Appendix I, the peak ground acceleration that, as a minimum has a 10% probablity of being exceeded in 50 years, is 0.345g. Due to the proximity of the active Newport-Inglewood Fault Zone approximately 7 km. southwest of the site capable of a maximum magnitude of 7.5, ground shaking during an earthquake is considered a potentially significant impact.

Mitigation Measures: It should be noted that there is no realistic way in which the seismic shaking hazard can be avoided; however, it should be recognized that it is not considered feasible to make structures totally resistant to seismic shaking. Seismic performance goals may expect that some property damage will be sustained in a moderate to large earthquake, but damage should be repairable and not life-threatening. For residential development, structures should be able to:

- Resist minor earthquakes with no damage
- Resist moderate earthquakes with some nonstructural damage
- Resist major earthquakes with some structural damage, but with a low likelihood of collapse.

7.4 Subsidence:

The undocumented fills within the stress influence of proposed development area are recommended to be removed and replaced with engineered fill derived from approved onsite and offsite sources. The removal of the compressible materials and replacement with engineered fill, and the presence of dense underlying alluvial terrace deposits and bedrock materials, will mitigate potential for subsidence. Thus, subsidence is considered a less-than significant impact after development.

7.5 Flooding:

Refer to the Civil Engineer's hydrologic study.

7.6 Erosion:

The proposed plan will be essentially flat, thus, erosion is considered to be a less-than significant impact after development.

7.7 Landsliding:

No evidence for deep-seated landsliding was observed on or in the immediate vicinity of the site, in the field, or on the aerial photographs reviewed. Due to the lack of significant topography, landsliding is not expected on the site and therefore is considered a less-than significant impact after development.

7.8 Loss of Mineral Resources:

No economic mineral resources are present. Therefore, the loss of mineral resources is considered a less-than significant impact.

7.9 Liquefaction Potential:

Liquefaction is a phenomenon which tends to occur in saturated cohesionless soils during relatively severe earthquake ground motions. In general, during ground motion, saturated sands tend to compact and decrease in volume, and if drainage is

unable to occur, an increase in pore water pressure may result. If the pore water pressure becomes equivalent to the overburden pressure, the effective stress becomes zero and, consequently, the soil loses its strength and is considered to be in a liquefied state.

Liquefaction analyses were performed by this firm based on procedures developed at the NCEER (National Center for Earthquake Engineering Research) Workshop (Youd and Idriss, 1997), and available field data obtained by Gregg In Situ, Inc., utilizing CPT soundings (CPT-1, CPT-2, CPT-4 and CPT-8). Additional field exploration consisting of hollowstem auger borings, were also performed to augment the CPT field data. A computer program "LiquefyPro" developed by CivilTech Software, USA., was utilized to evaluate the liquefaction potential and liquefaction induced settlement.

Based on stabilized ground water levels measured by others in the subject site and the vicinity, the design groundwater level of 15 feet below existing grade was used in our liquefaction analyses. A peak ground acceleration of 0.36g and earthquake magnitude of 6.6 were assumed in the liquefaction analyses. Our liquefaction analysis using the CPT data indicates that isolated, thin, and discontinuous layers of medium dense granular soil below the groundwater table in the CPT's are susceptible to liquefaction as summarized below:

ZONES OF POTENTIAL SOIL LIQUEFACTION

CPT No.	Depth Range of Potential Liquefaction Zones Below Existing Grade, (ft.)	Total Liquefaction Induced Settlement (Inches)
CPT-1	27.4-28.0, 31.4-31.7, 46.6-48.0	0.43
CPT-2	30.0-31.8, 43.2-44.4, 49.8-50.0	0.24
CPT-4	29.3-30.1, 37.1-37.7	0.19
CPT-8	30.9-31.1, 33.7-33.9, 35.0-35.6, 38.8-39.4, 40.8-41.3, 41.5-42.3, 43.0-43.2, 44.1- 44.2,	0.18

The results of our liquefaction analyses indicate there are isolated and discontinuous thin layers of medium dense sand and silty sand below the groundwater table that are susceptible to liquefaction during a major earthquake. Based on our liquefaction analyses using the CPT's, we conclude that up to about 1/2 inch of liquefaction-induced total settlement may occur at isolated locations within the site. Because liquefaction will likely occur in isolated areas, differential settlement may be abrupt; therefore, differential settlements equivalent to the total settlements described above may occur over short distances.

The potential for liquefaction-induced ground rupture and sand boils to occur at the site depends on the thickness of the liquefiable soil layer relative to the thickness of the overlying non-liquefiable material. Ishihara (1985) presented an empirical relationship that provides criteria that can be used to evaluate whether liquefaction-induced surface ruptures and sand boils would be expected to occur under a given level of shaking for a liquefiable layer overlain by a non-liquefiable surficial layer. The potentially liquefiable soil layers encountered in the borings and CPTs are generally relatively thin (less than two feet thick), and are located below a depth of 27 feet below ground surface. Therefore, we conclude that the potential for surface manifestations of liquefaction to be low under the current site conditions.

Site specific liquefaction analyses should be performed for each future building during design phase considering the locations of each building and configurations such as subterranean construction, etc. To mitigate potential adverse effects associated with soil liquefaction, reinforced shallow foundations or deepened foundations may be used.

7.10 Slope Stability:

No significant slopes are proposed, therefore slope stability is a less-than significant impact.

7.11 Tsunamis:

Tsunamis are rare events, due to lack of known occurrences in the historical record, therefore, there is no information about the probability of any tsunamis affecting the site within a specific period of time. Based on the California Geologic Survey's Tsunami Inundation Map for Emergency Planning, Newport Beach Quadrangle (attached), the subject site will not be inundated. Also, since the site is elevated to 50 ft.± above sea level, tsunamis can be considered a less-than significant impact.

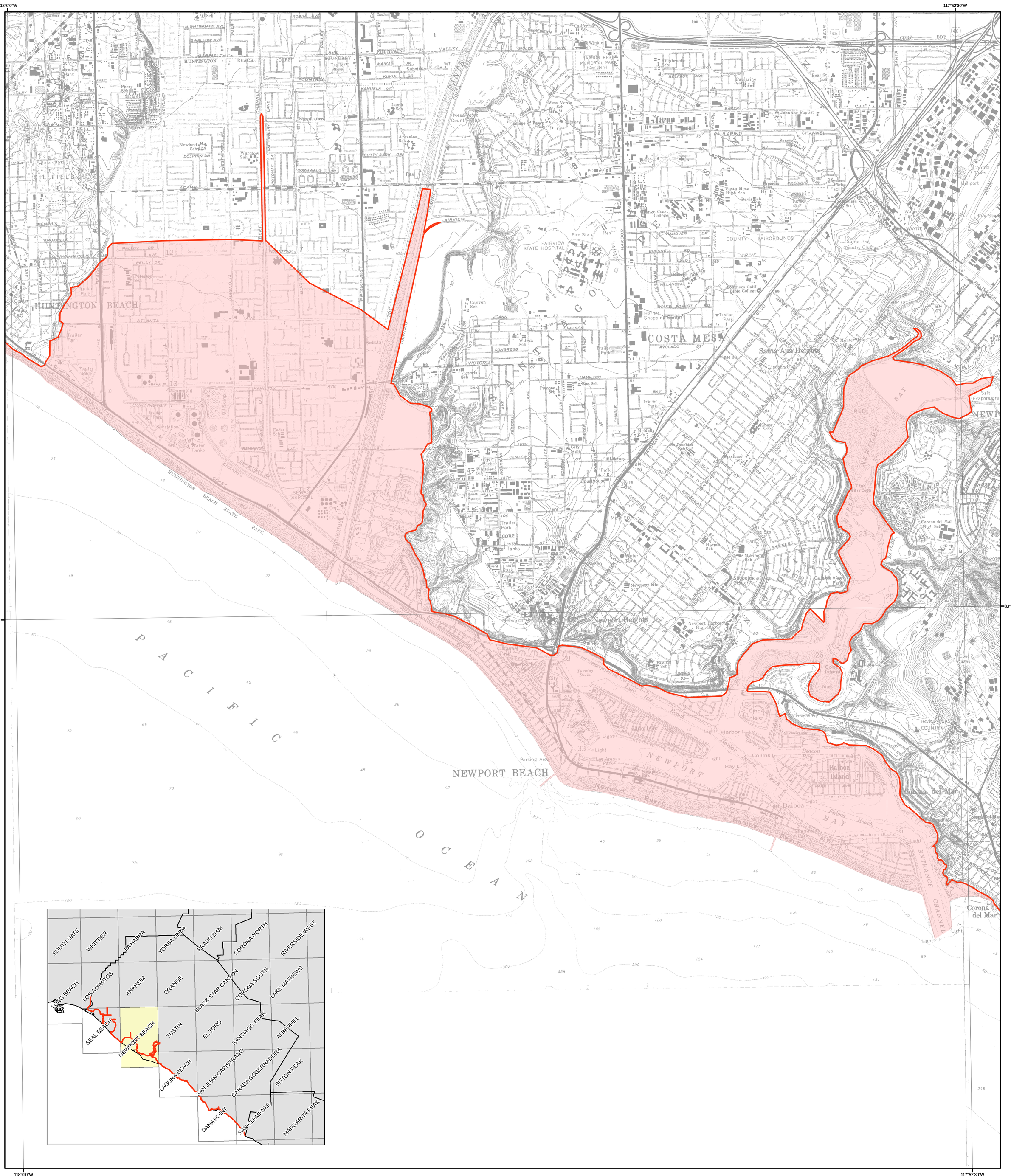
8.0 SUMMARY OF GEOLOGIC AND ENVIRONMENTAL HAZARDS AND POTENTIAL MITIGATION MEASURES

The California Division of Mines and Geology (CDMG) (1982), now known as the California Geologic Survey (CGS), has prepared guidelines for geologic and seismic considerations in environmental impact reports in order to identify potential geologic hazards and assist in recognizing data needed for design analysis and mitigation measures. These guideline have been followed in this report. The potential geologic and geotechnical engineering impacts to development identified herein are summarized in the following Table 6 – Summary of Engineering Geologic/Geotechnical Engineering Impacts and Corresponding Mitigation Measure. This analysis pertains to the area where structures are proposed.

California Emergency Management Agency
California Geological Survey
University of Southern California

Tsunami Inundation Map for Emergency Planning
Newport Beach Quadrangle

State of California
County of Orange



METHOD OF PREPARATION

Initial tsunami modeling was performed by the University of Southern California (USC) Tsunami Research Center funded through the California Emergency Management Agency (CalEMA) by the National Tsunami Hazard Mitigation Program. The tsunami modeling process utilized the MOST (Method of Splitting Tsunamis) computational program (Version 0), which allows for wave evolution over a variable bathymetry and topography used for the inundation mapping (Titov and Gonzalez, 1997; Titov and Synolakis, 1998).

The bathymetric/topographic data that were used in the tsunami models consist of a series of nested grids. Near-shore grids with a 3 arc-second (75- to 90-meters) resolution or higher, were adjusted to "Mean High Water" sea-level conditions, representing a conservative sea level for the intended use of the tsunami modeling and mapping.

A suite of tsunami source events was selected for modeling, representing realistic local and distant earthquakes and hypothetical extreme undersea, near-shore landslides (Table 1). Local tsunami sources that were considered include offshore reverse-thrust faults, restraining bends on strike-slip fault zones and large submarine landslides capable of significant seafloor displacement and tsunami generation. Distant tsunami sources that were considered include great subduction zone events that are known to have occurred historically (1960 Chile and 1964 Alaska earthquakes) and others which can occur around the Pacific Ocean "Ring of Fire."

In order to enhance the result from the 75- to 90-meter inundation grid data, a method was developed utilizing higher-resolution digital topographic data (3- to 10-meters resolution) that better defines the location of the maximum inundation line (U.S. Geological Survey, 1993; Intermap, 2003; NOAA, 2004). The location of the enhanced inundation line was determined by using digital imagery and terrain data on a GIS platform with consideration given to historic inundation information (Lander, et al., 1993). This information was verified, where possible, by field work coordinated with local county personnel.

The accuracy of the inundation line shown on these maps is subject to limitations in the accuracy and completeness of available terrain and tsunami source information, and the current understanding of tsunami generation and propagation phenomena as expressed in the models. Thus, although an attempt has been made to identify a credible upper bound to inundation at any location along the coastline, it remains possible that actual inundation could be greater in a major tsunami event.

This map does not represent inundation from a single scenario event. It was created by combining inundation results for an ensemble of source events affecting a given region (Table 1). For this reason, all of the inundation region in a particular area will not likely be inundated during a single tsunami event.

References:

Intermap Technologies, Inc., 2003, Intermap product handbook and quick start guide: Intermap NEXTmap document on 5-meter resolution data, 112 p.

Lander, J.F., Lockridge, P.A., and Kozuch, M.J., 1993, Tsunamis Affecting the West Coast of the United States 1806-1992: National Geophysical Data Center Key to Geophysical Record Documentation No. 29, NOAA, NESDIS, NGDC, 242 p.

National Atmospheric and Oceanic Administration (NOAA), 2004, Interferometric Synthetic Aperture Radar (IfSAR) Digital Elevation Models from GeoSAR platform (EarthData): 3-meter resolution data.

Titov, V.V., and Gonzalez, F.I., 1997, Implementation and Testing of the Method of Tsunami Splitting (MOST): NOAA Technical Memorandum ERL PMEL – 112, 11 p.

Titov, V.V., and Synolakis, C.E., 1998, Numerical modeling of tidal wave runup: Journal of Waterways, Port, Coastal and Ocean Engineering, ASCE, 124 (4), pp 157-171.

U.S. Geological Survey, 1993, Digital Elevation Models: National Mapping Program, Technical Instructions, Data Users Guide 5, 48 p.

TSUNAMI INUNDATION MAP FOR EMERGENCY PLANNING

State of California ~ County of Orange

NEWPORT BEACH QUADRANGLE

March 15, 2009

SCALE 1:24,000

0.5 0.25 0 0.5 1 Miles

1,000 500 0 1,000 2,000 3,000 4,000 5,000 Feet

0.5 0.25 0 0.5 1 Kilometers

Table 1: Tsunami sources modeled for the Orange County coastline.

Sources (M = moment magnitude used in modeled event)		Areas of Inundation Map Coverage and Sources Used		
		Long Beach Harbor	Newport Harbor	Dana Point
Local Sources	Catalina Fault	X	X	X
	Channel Island Thrust Fault			X
	Newport-Inglewood Fault	X	X	X
	San Mateo Thrust Fault			X
	Palos Verdes Submarine Landslide #1	X	X	
	Palos Verdes Submarine Landslide #2	X	X	
Distant Sources	Cascadia Subduction Zone #3 (M9.2)	X		X
	Central Aleutians Subduction Zone#1 (M8.9)	X		X
	Central Aleutians Subduction Zone#2 (M8.9)	X		X
	Central Aleutians Subduction Zone#3 (M9.2)	X	X	X
	Chile North Subduction Zone (M9.4)	X	X	X
	1960 Chile Earthquake (M9.3)	X	X	X
	1952 Kamchatka Earthquake (M9.0)			X
	1964 Alaska Earthquake (M9.2)	X	X	X
	Japan Subduction Zone #2 (M8.8)	X		X
	Kuril Islands Subduction Zone #2 (M8.8)	X		X
	Kuril Islands Subduction Zone #3 (M8.8)	X		X
	Kuril Islands Subduction Zone #4 (M8.8)	X		X

Cal EMA CALIFORNIA EMERGENCY MANAGEMENT AGENCY

CGS CALIFORNIA GEOLOGICAL SURVEY

USC UNIVERSITY OF SOUTHERN CALIFORNIA

MAP EXPLANATION

Tsunami Inundation Line

Tsunami Inundation Area

PURPOSE OF THIS MAP

This tsunami inundation map was prepared to assist cities and counties in identifying their tsunami hazard. It is intended for local jurisdictional, coastal evacuation planning uses only. This map, and the information presented herein, is not a legal document and does not meet disclosure requirements for real estate transactions nor for any other regulatory purpose.

The inundation map has been compiled with best currently available scientific information. The inundation line represents the maximum considered tsunami runup from a number of extreme, yet realistic, tsunami sources. Tsunamis are rare events; due to a lack of known occurrences in the historical record, this map includes no information about the probability of any tsunami affecting any area within a specific period of time.

Please refer to the following websites for additional information on the construction and/or intended use of the tsunami inundation map:

State of California Emergency Management Agency, Earthquake and Tsunami Program:
http://www.oes.ca.gov/WebPage/oeswebsite.nsf/Content/B1EC51BA215931768825741F005E8D80?OpenDocument

University of Southern California – Tsunami Research Center:
http://www.usc.edu/dept/tsunamis/2005/index.php

State of California Geological Survey Tsunami Information:
http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/index.htm

National Oceanic and Atmospheric Agency Center for Tsunami Research (MOST model):
http://nctr.pmel.noaa.gov/time/background/models.html

MAP BASE

Topographic base maps prepared by U.S. Geological Survey as part of the 7.5-minute Quadrangle Map Series (originally 1:24,000 scale). Tsunami inundation line boundaries may reflect updated digital orthophotographic and topographic data that can differ significantly from contours shown on the base map.

DISCLAIMER

The California Emergency Management Agency (CalEMA), the University of Southern California (USC), and the California Geological Survey (CGS) make no representation or warranties regarding the accuracy of this inundation map nor the data from which the map was derived. Neither the State of California nor USC shall be liable under any circumstances for any direct, indirect, special, incidental or consequential damages with respect to any claim by any user or any third party on account of or arising from the use of this map.

TABLE 6 – SUMMARY OF ENVIRONMENTAL GEOLOGIC/GEOTECHNICAL ENGINEERING IMPACTS AND CORRESPONDING MITIGATION MEASURES (Modified from CDMG Note 46)

	Degree of Impact Prior to or During Development			Mitigation Measures		Degree of Impact After Development		
Geologic/ Geotechnical Engineering Impacts	Less-Than Significant Impact	Potentially Significant Impact	Significant Impact	Code Conformance	Code Conformance with Mitigation Measures as Outlined in this Report	Less-Than Significant Impact	Potentially Significant Impact	Significant Impact
Seismic Hazards								
Seismic Ground Shaking		x		x		x		
Liquefaction		x			x	x		
Seismically Induced Settlement		x			x	x		
Ground Lurching	x				x	x		
Flooding (due to dam or levee failure)	x				x	x		
Surface Fault Rupture	x			x		x		
Tsunami	x					x		
Seiches not applicable								
Slope Stability								
Landslides and Slope Instability not applicable								
Trench-Wall Stability		x		x		x		
Groundwater	x				x	x		
Change in Ground Water Level								
Foundation Stability	x					x		
Compressible Soils/Collapsible Soils								
Expansive Soils		x			x	x		
Corrosive Soils unknown								
Rippability not applicable								
Regional Subsidence	x					x		
Erosion	x					x		
Flooding (due to inclement weather; 100-year flood)	x				x	x		
Loss of Mineral Resources	x					x		
Volcanic Hazards	x					x		
Lava Flow								
Ash Fall	x					x		

9.0 PRELIMINARY GRADING CONSIDERATIONS

The preliminary grading considerations presented herein are provided for use in preliminary planning for development of the site. Specific details of grading recommendations will be presented in a future report during the design phase based on formal grading plan at the 40-scale level, when they are developed. Presented in the

following are grading considerations which should be included in future planning phases for the subject development:

- Prior to grading operations it will be necessary to remove all existing construction, including utilities, within the limits of the planned grading. Structure removal should include foundations and flatwork. Concrete fragments and debris from site demolition operations should be disposed off-site.

- Abandoned underground utilities should be cut off at least 5 feet from the planned limits of planned structures. The ends of cut-off lines should be plugged and capped in accordance with local ordinances.

- Following site preparation operations, it is recommended that the existing native soils disturbed by demolition activities should be removed completely and replaced with engineered compacted fill. The extent of removals will be determined after the demolition of the existing improvements.

- In general, temporary excavations greater than 5 feet in vertical height should be made no steeper than 1:1 (horizontal to vertical). Special construction techniques, such as slot cutting, may be utilized if excavations are greater than 5 feet vertical and site constraints preclude use of temporary slope cuts.

- The acceptability of excavation bottoms should be evaluated by the Project Geotechnical Engineer prior to placing approved fill soils. Approved excavation bottoms should be thoroughly moisture conditioned, as necessary, to 1-3 percentage points above optimum moisture content depending on the soil type exposed, scarified to a depth of about 8 inches and compacted to minimum 90 percent of the laboratory maximum dry density (ASTM: D 1557). Fill materials should be placed in loose lifts not exceeding 6-inches in thickness, moisture conditioned to 1-3 percentage points above optimum moisture content, depending on the soil type, and compacted to at least 90 percent relative compaction based on the laboratory maximum dry density. All grading should be performed under the observation and testing of the Project Geotechnical Engineer or his representative.

- Fill materials should consist of clean onsite or imported soils and should be free of vegetation, hazardous materials, over-size rocks, construction debris and any other organic or deleterious materials.

- The shrinkage of excavated soils (within upper 5 feet from the existing grade) upon compaction as engineered fill is anticipated to be on the order of 5 percent. The above shrinkage factor does not include losses due to stripping and removal of organic soils, if present.

10.0 FOUNDATION CONSIDERATION

10.1 General:

Site remedial grading is recommended as noted previously and will provide a site suitable for the proposed development. Foundation considerations should include the following:

- Portions of the site soils exhibit expansive characteristics. In order to reduce the effects of expansive soils and potential settlement, the use of post-tensioned slab on grade foundations can be considered. These slabs should be designed in accordance with the applicable Uniform Building Code and local jurisdictional requirements.

- Specific recommendations for foundations are planned to be provided at a later date during subsequent design/plan development phases and the types of structures are known.

10.2 Other Construction Considerations:

Recommendations for streets, paved areas, utilities, and geotechnical drainage considerations are to be provided once design concepts are finalized and preliminary grading and development plans are formulated. For preliminary planning purposes, the general specification given in the current Standard Specifications for Public Works (Green Book), County of Orange and City jurisdictional guidelines may be used, as applicable.

Special considerations should be given to provide appropriate environmental control of drainage and surface/subsurface runoff. Many of the BMP's for responsible drainage control can be incorporated as the project progresses into the planned development without significant obtrusiveness. These devices can be incorporated with landscape features to recover water resources from drainage for beneficial uses. The design and incorporation of drainage control devices should be a focus of future study.

11.0 CONCLUSIONS

This report presents general geotechnical and engineering geologic guidelines and considerations that should be taken into account to appropriately develop more detailed grading plans and design criteria from the preliminary grading plans. Additional study and refinement of the recommendations present is anticipated concordant with more detailed plan development.

It is the conclusion of this firm that the site can be remediated to address the main geotechnical issues. Further, it is our opinion that provided the project is developed and constructed with appropriate engineering and design, the project is feasible from geotechnical and engineering geologic standpoints. It is also our opinion that from an engineering geologic stand point provided the project is developed and constructed with appropriate engineering, design and mediation considerations, the project will not adversely impact adjacent properties.

12.0 LIMITATIONS

This report has been prepared for the exclusive use of Uptown Newport LP and their design consultants relative to the design and construction of the proposed project. This report is not intended for other parties, and it may not contain sufficient information for other purposes. The recommendations presented herein are of a general/conceptual nature and will be refined and detailed in forthcoming reports specific to various aspects of development. As such, the current recommendations may be subject to revision as additional detail of the project is made and additional data is developed, as well as in response to jurisdictional review requirements. This report is based on the project as described and the information obtained as described herein.

The Owner or Owner Representative should make sure that the information and preliminary recommendations presented in this report are brought to the attention of the Project Architect and Project Engineer and incorporated into the project plans.

The findings contained in this report are based upon our evaluation and interpretation of the information obtained from limited borings and the results of the laboratory testing and engineering analysis. The opinions and recommendations provided were based on the assumption that geotechnical conditions, which exist across the site, are similar to those observed in the test excavation. The condition and characteristics of the subsurface materials at locations and depths other than those excavated and observed may be different and no representations are made as to their quality and engineering properties. Should any conditions encountered during construction differ from those described herein, this office should be contacted immediately for evaluation of the actual conditions and for appropriate recommendations prior to continuation or work.

The findings and recommendations present herein were obtained in accordance with currently accepted professional engineering principles and practice in the field of geologic and geotechnical engineering and reflect our best professional judgment. We make no other warranty, either express or implied.

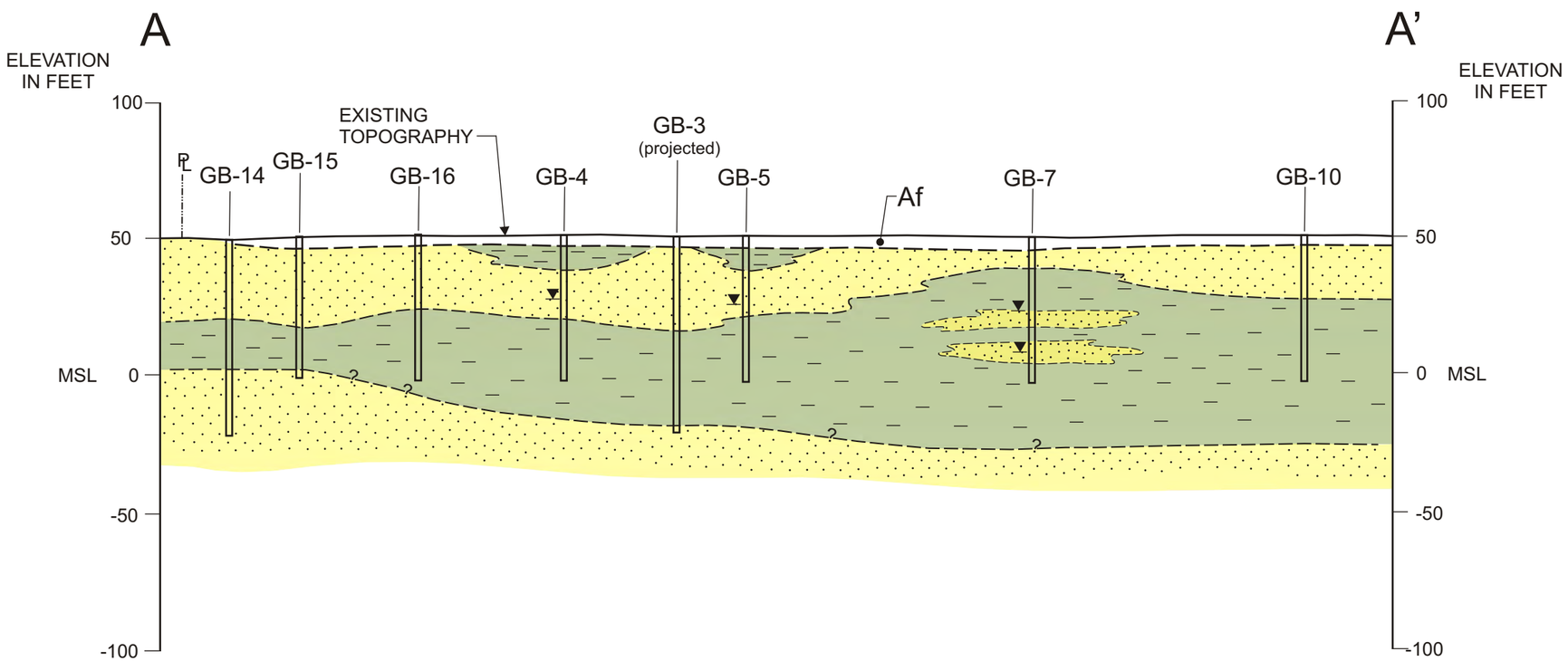
We appreciate the opportunity to be of service and look forward to working with you and the other project consultants. If you have any questions or require additional information, please contact our office.

Respectfully submitted,
GINTER & ASSOCIATES, INC.

By:_____
David H. Ginter
President

By:_____
Vela "Ganesh" Ganeshwara
Consulting Geotechnical Engineer

Addressee: 4 hard copies/4 digital copies
Gavin Powell, Hall & Foreman, Inc. (1 hard copy/1 digital)



CROSS-SECTION A-A'

HORIZONTAL SCALE: 1"=200'
VERTICAL SCALE: 1"= 50'

Legend

- OLIVE GREEN CLAY AND SILTY CLAY
- FINE TO COARSE GRAINED SANDS WITH SOME SILTS AND GRAVELS
- PERCHED GROUNDWATER
- APPROXIMATE GEOLOGIC CONTACT

PROJECT NO. :
116-02

DATE :
Nov., 2011

OVERALL SITE
1 SUBTERRANEAN PARKING LEVEL

OVERALL EARTHWORK QUANTITIES

RAW CUT: 98,500 C.Y
RAW FILL: 114,100 C.Y.

EARTHWORK VOLUME RANGES

Color	Range Beg.	Range End	Percent	Area (S.F.)
	−15.00	−10.00	0.0	132
	−10.00	−5.00	28.5	311,313
	−5.00	0.00	18.4	200,805
	0.00	5.00	28.1	306,032
	5.00	10.00	19.6	214,117
	10.00	15.00	4.2	46,283
	15.00	20.00	1.1	12,313

Legend

- GB-16 — APPROXIMATE LOCATION OF HOLLOWSTEM BORING BY GINTER & ASSOCIATES, 2011
- CPT-8 — APPROXIMATE LOCATION OF CPT BY GINTER & ASSOCIATES, 2011
- I-6 — APPROXIMATE LOCATION OF BORING BY JACOB & HEFNER, 2010
- B-6 — APPROXIMATE LOCATION OF BORING BY GLOBUS, 1997
- B-24 — APPROXIMATE LOCATION OF HOLLOW STEM BORING BY DAMES & MOORE, Sept./Oct. 1996
- B-2 — APPROXIMATE LOCATION OF HOLLOWSTEM BORING BY DAMES & MOORE, March, 1996
- B-3 — APPROXIMATE LOCATION OF ROTARY WASH BORING BY DAMES & MOORE, 1995
- A — A' — CROSS-SECTION LINE

50 0 50 100
scale 1" = 50' feet

LAST REVISED: 10/23/11

GEOTECHNICAL MAP

PROJECT NO.: 116-02
DATE: Nov.,2011

Hall & Foreman, Inc.
Engineering · Planning · Surveying
17782 17TH ST, SUITE 200 • TUSTIN, CA 92780-1947 • 714-665-4500

LIST OF APPENDICES

APPENDIX I

CBC SEISMIC DESIGN PARAMETERS

CBC SEISMIC DESIGN PARAMETERS
Upper Newport Villiage
Project No. 116-02
Determined Utilizing
USGS EARTHQUAKE GROUND MOTION PARAMETERS
Version 5.1.0 (Revised 2/10/2011)

Conterminous 48 States
2005 ASCE 7 Standard
Latitude = 33.662924
Longitude = -117.859706
Spectral Response Accelerations Ss and S1
Ss and S1 = Mapped Spectral Acceleration Values
Site Class B - Fa = 1.0 ,Fv = 1.0
Data are based on a 0.01 deg grid spacing

Period (sec)	Sa (g)
0.2	1.588 (Ss, Site Class B)
1.0	0.563 (S1, Site Class B)

Conterminous 48 States
2005 ASCE 7 Standard
Latitude = 33.662924
Longitude = -117.859706
Spectral Response Accelerations SMs and SM1
SMs = Fa x Ss and SM1 = Fv x S1
Site Class B - Fa = 1.0 ,Fv = 1.0

Period (sec)	Sa (g)
0.2	1.588 (SMs, Site Class B)
1.0	0.563 (SM1, Site Class B)

Conterminous 48 States
2005 ASCE 7 Standard
Latitude = 33.662924
Longitude = -117.859706
Design Spectral Response Accelerations SDs and SD1
SDs = 2/3 x SMs and SD1 = 2/3 x SM1
Site Class B - Fa = 1.0 ,Fv = 1.0

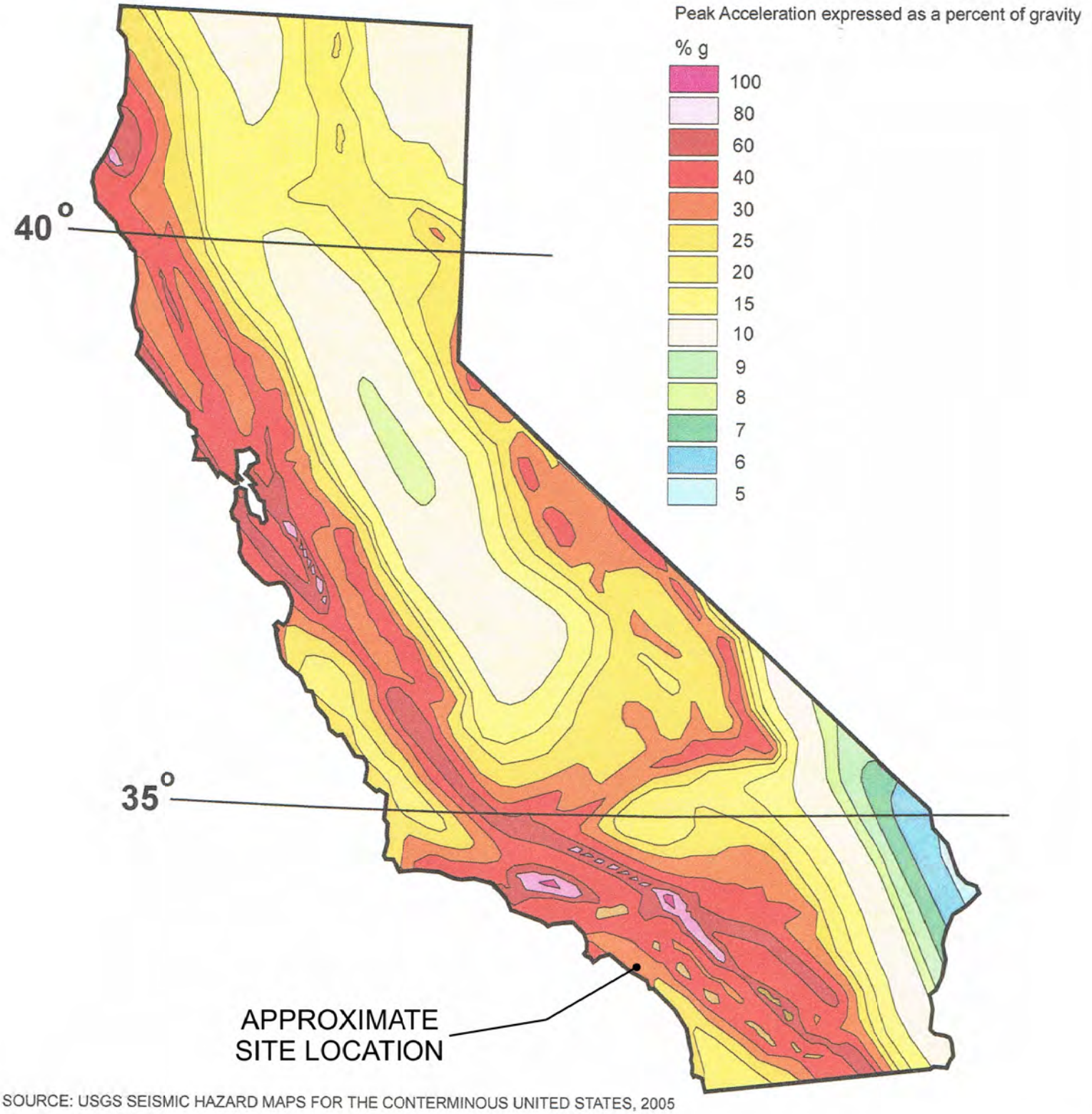
Period (sec)	Sa (g)
0.2	1.058 (SDs, Site Class B)
1.0	0.375 (SD1, Site Class B)

Peak Ground Acceleration Data
Upper Newport Villiage
Project No. 116-02
Dertermined Utilizing
EARTHQUAKE GROUND MOTION PARAMETERS
Version 5.1.0 (Revised 2/10/2011)

Conterminous 48 States
2002 Data
Hazard Curve for PGA
Latitude = 33.662924
Longitude = -117.859706
Data are based on a 0.05 deg grid spacing
Frequency of Exceedance values less than
1E-4 should be used with caution.

Ground Motion (g)	Frequency of Exceedance (per year)
0.005	7.9551E-01
0.007	7.0548E-01
0.010	5.9594E-01
0.014	4.7454E-01
0.019	3.528E-01
0.027	2.4532E-01
0.038	1.599E-01
0.053	9.6607E-02
0.074	5.4074E-02
0.103	2.8307E-02
0.145	1.3772E-02
0.203	6.6168E-03
0.284	3.2092E-03
0.397	1.5477E-03
0.556	6.8763E-04
0.778	2.6442E-04
1.090	8.2816E-05
1.520	2.0254E-05
2.130	3.3477E-06

Ground Motion (g)	Freq. of Exceed. (per year)	Return Pd. (years)	P.E. %	Exp. Time (years)
0.3447	2.1053E-03	475.00	10.00	50.0



SOURCE: USGS SEISMIC HAZARD MAPS FOR THE CONTERMINOUS UNITED STATES, 2005

PEAK HORIZONTAL ACCELERATION
10 PERCENT PROBABILITY OF EXCEEDANCE IN 50 YEARS

APPENDIX II

BORINGS GB-1 THROUGH GB-16

BY GINTER & ASSOCIATES, INC.

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 1016-02
DATE STARTED: 9/8/11
DATE FINISHED: 9/8/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 49
KELLEY WT/DRIVE/DROP: 140 lb./30"
NOTES:

BORING DESIG. GB-16
LOGGED BY: BW
SHEET 2 OF 2

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
40			R	7/10/13		Clay, bluish gray and olive gray, moist, stiff, plastic, frequent fossil bivalve mollusk shell fragments.	87	32
45			SPT	5/6/6		Clay and Silty Clay, dark bluish gray, very moist, stiff, occasional bivalve mollusk shell fragments.		
50			R	10/22/30		Clayey Sand and Sandy Clay, dark gray, olive gray and olive brown, moist, stiff/dense.	119	9
						Total Depth 51.5 Feet. No Water.		

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 116-02
DATE STARTED: 8/29/11
DATE FINISHED: 8/29/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 53.5
KELLEY WT/DRIVE/DROP: 140 lb./30"
BORING DESIG. GB-1
LOGGED BY: BW
SHEET 1 OF 2
NOTES:

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
						Artificial Fill (Af): 0-6": Asphaltic Concrete and base material. 6" to 4.75 feet: Clayey Silt, brown and yellowish brown, moist, stiff.		
5			R	6/11/17		**Terrace/Bay Deposits:** Sandy Clay, and Silty Clay, tan, brown, gray, and reddish brown, moist, medium stiff.		
			R	7/11/19		Silty Sand, reddish brown, yellowish brown and light gray, slightly moist to moist, dense, fine grained.	101	11
10			R	8/13/16		Silty Sand, grayish tan and brown, slightly moist to moist, dense, fine grained.	110	12
15			SPT	7/9/14		Silty Sand, grayish tan and light gray, slightly moist to moist, dense, fine grained, micaceous.		
20			R	18/20/25		Sand, tan and yellowish tan, moist, dense, medium-grained, increasing moisture.	106	8
25			SPT	11/14/22		Silty Sand, yellowish gray and yellowish tan, very moist to saturated, dense, medium-grained, occasional fossil mollusk fragments and subround pebbles (to ½ inch)		
						▽ Water at approximately 30 feet		
30			R	10/13/15		Clay and Silty Clay, olive green and olive gray, very moist, stiff, occasional bivalve mollusk shell fragments.	86	36
35			SPT	8/9/12		Silty Clay and Clay, dark gray, very moist, stiff, occasional bivalve mollusk shell fragments.		
40			R	7/9/11		Clay, dark gray, very moist, stiff.	90	31

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 1016-02
DATE STARTED: 8/29/11
DATE FINISHED: 8/29/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 53.5
KELLEY WT/DRIVE/DROP: 140 lb./30"

BORING DESIG. GB-1
LOGGED BY: BW
SHEET 2 OF 2

NOTES:

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
40			R	7/9/11		Clay, dark gray, very moist, stiff.	90	31
45			SPT	5/6/8		Sandy Clay, medium gray to dark gray, very moist, stiff.		
50			R	7/9/12		Sandy Clay and Clayey Sand, dark gray and dark bluish gray, very moist, stiff, secondary carbonate along clay/sand interfaces.	107	19
55			SPT	9/11/14		Silty Sand and Fine-Grained Sand, light gray, slightly moist to moist, dense.		
60			R	7/10/13		Sandy Clay and Clay, gray and dark bluish gray, very moist, stiff.	113	10
65			SPT	13/15/20		Fine-Grained Sand, light gray, slightly moist to moist, dense.		
70			R	13/25/30		Medium-Grained Sand, reddish brown, tan and gray, slightly moist to moist, dense to hard.	99	7
						Total Depth 71.5 Feet. Water at 30 Feet.		

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 116-02
DATE STARTED: 8/30/11
DATE FINISHED: 8/30/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 53
KELLEY WT/DRIVE/DROP: 140 lb./30"
NOTES:

BORING DESIG. GB-2
LOGGED BY: BW
SHEET 1 OF 2

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft^3	MOISTURE CONTENT (%)
						Artificial Fill (Af): 0-12": Asphaltic Concrete and base material 12" to 4 feet: Sand and lesser Silty Sand, reddish brown, moist, dense, medium grained.		
5			R	6/8/13		**Terrace/Bay Deposits:** Sandy Silt, tan, gray, and reddish brown, moist, stiff, micaceous.	105	18
			R	8/14/23		Sandy Silt and Silty Clay, olive gray, olive brown, reddish brown and tan, moist, stiff, occasional carbonate blebs and stringers.	107	19
10			R	10/22/27		Silty Sand and Sandy Silt, gray, tan and reddish brown, slightly moist to moist, dense/stiff.	99	21
15			SPT	8/8/10		Silty Sand, reddish brown and tan, slightly moist dense, fine grained, micaceous. At 16.4 feet: Sandy Clay, light gray to olive gray, moist, stiff.		
20			SPT	7/10/16		Clayey Silt, olive gray to olive green, moist, stiff.		
25			R	8/13/11		Sandy Clay, olive gray and light olive green, moist, stiff, medium plastic, occasional fossil mollusk fragments. Minor Free water on outside of sampler.	108	19
30			SPT	7/10/12		Sandy Clay and Silty Clay, olive brown and yellowish brown, moist, stiff.		
35			R	8/9/10		Silty Clay and Clay, olive green to olive brown, moist, stiff, plastic.	92	31
40			SPT	7/8/10		Clay, dark bluish gray, very moist, stiff, highly plastic.		

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 1016-02
DATE STARTED: 8/30/11
DATE FINISHED: 8/30/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 53
KELLEY WT/DRIVE/DROP: 140 lb./30"

BORING DESIG. GB-2
LOGGED BY: BW
SHEET 2 OF 2

NOTES:

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
40			SPT	7/8/10		Clay, dark bluish gray, very moist, stiff, highly plastic.		
45			R	8/9/12		Clay, dark bluish gray, very moist, stiff, highly plastic.	102	22
50			SPT	7/8/10		Clay and Clayey Sand, gray and bluish gray, very moist, stiff.		
						Total Depth 51.5 Feet. Minor Water at 25 Feet.		

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 116-02
DATE STARTED: 8/3011
DATE FINISHED: 8/30/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 55
KELLEY WT/DRIVE/DROP: 140 lb./30"
BORING DESIG. GB-3
LOGGED BY BW
SHEET 1 OF 2
NOTES:

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
						Artificial Fill (Af): 0-10": Asphaltic Concrete and base material. 10" to 4.75 feet: Sand and Silty Sand, reddish brown to brown moist, dense.		
5			R	8/10/12		**Terrace/Bay Deposits:** Silty Sand, reddish brown to brown, moist, dense.	109	10
			R	9/10/18		Sand, tan and grayish brown, slightly moist to moist, dense, micaceous, fine-grained.	99	3
10			R	12/18/24		Sand and Silty Sand, yellowish brown to brown, slightly moist to moist, dense, micaceous, fine-grained.	103	20
15			SPT	11/12/16		Silty Sand, grayish tan and light gray, slightly moist to moist, dense, fine grained, micaceous.		
20			R	8/13/20		Silty Sand and Sand, reddish brown, tan and yellowish brown, slightly moist to moist, dense, fine grained, micaceous.	105	14
25			SPT	19/30/35		Sand and lesser Silty Sand, yellowish tan to olive tan, slightly moist, dense, micaceous.		
						▽ Water at approximately 30 feet		
30			R	11/14/16		Sand and Gravelly Sand, with lesser Silty Sand, tan, yellowish brown, reddish brown, very moist to saturated, frequent bivalve mollusk shell fragments. Minor free water on sampler.	103	20
35			SPT	6/8/11		Silty Clay and Clay, olive brown and yellowish brown, moist, stiff, plastic.		
40			R	9/10/13		Clay, bluish gray and gray, very moist, stiff, plastic,fossil fragments.	94	28

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 1016-02
DATE STARTED: 8/30/11
DATE FINISHED: 8/30/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 55
KELLEY WT/DRIVE/DROP: 140 lb./30"

BORING DESIG. GB-3
LOGGED BY: BW
SHEET 2 OF 2

NOTES:

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
40			R	9/10/13		Clay, bluish gray and gray, very moist, stiff, plastic,fossil fragments.	94	28
45			SPT	6/9/13		Clayey Silt and Clay, greenish gray to olive gray, very moist, stiff, medium plastic, frequent bivalve mollusk shell fragments.		
50			R	7/10/13		Silty Clay, dark bluish gray to gray, moist, stiff, plastic, frequent bivalve mollusk shell fragments.	101	23
55			SPT	8/10/16		Sandy Clay and Clay, dark bluish gray, moist, stiff, locally plastic, occasional bivalve mollusk shell fragments.		
60			R	10/14/28		Sandy Clay and Clay, dark bluish gray, moist, stiff, low plasticity, occasional bivalve mollusk shell fragments.	105	22
65			SPT	7/8/13		Silty Clay, olive green, dark bluish gray and dark gray, moist, stiff medium plastic.		
70			R	11/23/30		Sand, light gray and bluish gray, moist to very moist, dense to very dense.	109	11
						Total Depth 71.5 Feet. Minor Water at 30 Feet.		

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 116-02
DATE STARTED: 8/31/11
DATE FINISHED: 8/31/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 51
KELLEY WT/DRIVE/DROP: 140 lb./30"
NOTES:

BORING DESIG. GB-4
LOGGED BY: BW
SHEET 1 OF 2

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft^3	MOISTURE CONTENT (%)
						Artificial Fill (Af): 0-10": Asphaltic Concrete and base material 10" to 4.75 feet: Silty Clay and Clayey Silt, brown to reddish brown, moist, stiff		
5			R	10/11/13		**Terrace/Bay Deposits:** Silty Clay and Clayey Silt, yellowish brown, brown and olive brown, moist, stiff.	97	22
			R	9/12/20		Silty Clay and Silty Sand olive brown and yellowish brown, moist, stiff/dense. Hard calcified layers at Clay/Sand contact- 8.25 feet	90	19
10			R	8/12/17		Clayey Silt, olive gray to yellowish brown, moist, stiff.	109	15
15			SPT	10/16/19		Sand and Gravelly Sand, yellowish tan, slightly moist, dense, clean, well-sorted.		
20			R	13/16/30		Sand and lesser Gravelly Sand, light grayish tan, slightly moist, dense, micaceous, clean, well-sorted. Increasing moisture 23-25 feet.	106	2
25			SPT	7/10/14		Sand and Gravelly Sand, brown and grayish brown, saturated, dense.		
30			R	12/12/16		Base of Sand and gravelly Sand @ 30.25 Feet. Silty Clay and Clay, olive green to olive brown, moist, stiff, plastic.	91	32
35			SPT	6/7/9		Silty Clay and lesser Sandy Silty lenses, olive brown, dark gray and olive gray, very moist, stiff, medium plastic to very plastic.		
40			R	14/18/27		Clay, dark bluish gray, very moist, stiff, highly plastic, frequent bivalve mollusk shell fragments.	87	34

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 1016-02
DATE STARTED: 8/31/11
DATE FINISHED: 8/31/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 51
KELLEY WT/DRIVE/DROP: 140 lb./30"

BORING DESIG. GB-4
LOGGED BY: BW
SHEET 2 OF 2

NOTES:

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
40			R	14/18/27		Clay, dark bluish gray, very moist, stiff, highly plastic, frequent bivalve mollusk shell fragments.	87	34
45			SPT	5/7/8		Clay, dark bluish gray, very moist, stiff, highly plastic, frequent bivalve mollusk shell fragments. Occasional thin Silty Sand lenses.		
50			R	10/12/17		Silty Sand and lesser Clayey Sand, gray and light gray, very moist, stiff, occasional bivalve mollusk shell fragments..	110	17
						Total Depth 51.5 Feet. Perched Water at 24 Feet.		

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 116-02
DATE STARTED: 8/31/11
DATE FINISHED: 8/31/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 50.5
KELLEY WT/DRIVE/DROP: 140 lb./30"
NOTES:

BORING DESIG. GB-5
LOGGED BY: BW
SHEET 1 OF 2

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft^3	MOISTURE CONTENT (%)
			B			**Artificial Fill (Af):** 0-10": Asphaltic Concrete and base material 10" to 4.5 feet: Silty Clay and Clayey Silt, brown to reddish brown, moist, stiff		
5			R	6/8/9		**Terrace/Bay Deposits:** Silty Clay and Clayey Silt, brown to yellowish brown, moist, stiff.	94	22
			R	6/15/19		Sand and lesser Silty Sand, tan, grayish tan and reddish brown, slightly moist, dense, fine-grained, micaceous.		
10			R	13/20/30		Sand and lesser Silty Sand, tan, grayish tan and reddish brown, slightly moist, dense, fine-grained, micaceous.	103	15
15			SPT	11/18/22		Sand, light grayish brown, slightly moist, dense, fine-grained, micaceous.		
20			R	16/25/27		Sand, reddish brown and tan, slightly moist to moist, dense, fine-grained, micaceous.	101	7
25			SPT	9/13/20		Sand and Gravelly Sand, reddish tan and grayish tan, slightly moist, dense, fine-grained, micaceous.		
30			R	7/10/18		Silty Clay and Clay, olive gray to olive brown and reddish brown, moist, stiff, plastic.	89	33
35			SPT	6/7/11		Silty Clay and Clay olive brown to olive gray, moist, stiff, plastic.		
40			R	8/9/10		Clay and lesser Silty Clay, olive gray to olive brown and reddish brown, moist to very moist, stiff, plastic.	83	42

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 1016-02
DATE STARTED: 8/31/11
DATE FINISHED: 8/31/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 50.5
KELLEY WT/DRIVE/DROP: 140 lb./30"

BORING DESIG. GB-5
LOGGED BY: BW
SHEET 2 OF 2

NOTES:

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
40			R	14/18/27		Clay and lesser Silty Clay, olive gray to olive brown and reddish brown, moist to very moist, stiff, plastic.	83	42
45			SPT	5/7/8		Clay, dark bluish gray, very moist, stiff, highly plastic, frequent bivalve mollusk shell fragments. Occasional thin Silty Sand lenses.		
50			R	10/12/17		Silty Sand and lesser Clayey Sand, gray and light gray, very moist, stiff, occasional bivalve mollusk shell fragments..	102	19
						Total Depth 51.5 Feet. Minor Water at 24 Feet.		

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 116-02
DATE STARTED: 9/7/11
DATE FINISHED: 9/7/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 55
KELLEY WT/DRIVE/DROP: 140 lb./30"
NOTES:

BORING DESIG. GB-6
LOGGED BY: BW
SHEET 1 OF 2

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft^3	MOISTURE CONTENT (%)
						Artificial Fill (Af): 0-10": Asphaltic Concrete and base material 10" to 3 feet: Silty Clay,dark brown, moist, stiff, minor organics.		
5			B @ 4.5' R	7/9/12		**Terrace/Bay Deposits:** Silty Sand and Sandy Silt, reddish brown, slightly moist to moist, soft to stiff.	104	15
			R	8/9/13		Sand and lesser Silty Sand, tan to brown, slightly moist, loose to medium dense, micaceous.	101	2
10			R	10/10/13		Sand and Silty Sand, brown and light brown, slightly moist to moist, dense, fine-grained.	96	5
15			SPT	6/10/13		Clayey Sand and Clayey Silt, brown and reddish brown, moist, dense.		
20			R	8/10/14		Silty Sand and Clayey Sand, brown and yellowish tan, slightly moist to moist, dense, fine-grained.	102	19
25			SPT	13/15/22		Sand, yellowish tan, slightly moist to moist, dense, fine-medium grained.		
30			R	14/30/35		Sand, yellowish tan, slightly moist to moist, dense, fine-medium grained, micaceous.	99	25
35			SPT	13/15/18		Silty Sand and lesser Clayey Sand, olive brown and tan, moist, dense, micaceous. Fining Downward.		
40			R	5/7/11		Clayey Sand, olive brown and reddish brown, moist to very moist, medium dense.		

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 1016-02
DATE STARTED: 9/7/11
DATE FINISHED: 9/7/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 55
KELLEY WT/DRIVE/DROP: 140 lb./30"
NOTES:

BORING DESIG. GB-6
LOGGED BY: BW
SHEET 2 OF 2

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
40			R	14/18/27		Clayey Sand, olive brown and reddish brown, moist to very moist, medium dense.		
45			SPT	5/7/8		Sand, yellowish tan, moist to very moist, dense to very dense.		
50			R	10/12/17		Sand, reddish brown and yellowish brown, slightly moist to moist, dense to very dense.	92	6
						Total Depth 51.5 Feet. Minor Water at 24 Feet.		

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 116-02
DATE STARTED: 9/211
DATE FINISHED: 9/2/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 50
KELLEY WT/DRIVE/DROP: 140 lb./30"
NOTES:

BORING DESIG. GB-7
LOGGED BY: BW
SHEET 1 OF 2

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft^3	MOISTURE CONTENT (%)
			B			**Artificial Fill (Af):** 0-9": Asphaltic Concrete and base material. 9" to 4.75 feet: Sand and Silty Sand, reddish brown to brown slightly moist, dense.		
5			R	6/7/11		**Terrace/Bay Deposits:** Silty Sand, reddish brown to brown, moist, dense to hard.		
			R	17/25/33		Clayey Sand and Silty Sand, reddish brown, slightly moist, dense to hard.	120	8
10			R	13/20/30		Clayey Sand and Silty Sand, reddish brown, slightly moist, dense to hard.	98	18
15			SPT	11/16/20		Silty Clay and Clay, reddish brown to olive brown, moist, stiff.		
20			R	12/18/25		Clay, greenish gray and olive gray, moist, stiff, occasional carbonate blebs.	96	23
25			SPT	8/11/14		Clay and Silty Clay, greenish gray and olive brown, very moist, stiff, medium plastic, occasional mollusk shell fragments. ▽ Water at approximately 27 feet		
30			R	13/20/34		Sand and Silty Sand, reddish brown and olive gray, very moist, dense.	99	6
35			SPT	7/7/10		Silty Clay and Clay, reddish brown and olive gray, very moist, soft to stiff, very plastic.		
40			R	10/11/18		Clayey Sand and Silty Sand, reddish brown to olive gray, very moist, dense.	104	21

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 1016-02
DATE STARTED: 9/2/11
DATE FINISHED: 9/2/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 50
KELLEY WT/DRIVE/DROP: 140 lb./30"

BORING DESIG. GB-7
LOGGED BY BW
SHEET 2 OF 2

NOTES:

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
40			R	10/11/18		Clayey Sand and Silty Sand, reddish brown to olive gray, very moist, dense.	104	21
45			SPT	7/9/11		Silty Clay and Clay, olive brown to olive gray, very moist to saturated, stiff, very plastic. Minor Sand lenses; top 0.25 feet. Perched water at 45.25 feet (Sand/Clay contact)		
50			R	8/10/14		Silty Clay, dark bluish gray to gray, moist, stiff, plastic, frequent bivalve mollusk shell fragments.	106	21
55			SPT	10/14/16		Sandy Clay and Clay, olive brown and olive gray, moist, stiff, occasional bivalve mollusk shell fragments.		
60			R	7/9/12		Silty Clay and Clay, olive brown and olive gray, moist, stiff, occasional bivalve mollusk shell fragments.	91	29
65			SPT	6/7/14		Silty Clay and Clay, olive brown and olive gray, moist, stiff, occasional bivalve mollusk shell fragments.		
70			R	10/11/15		Clay, dark gray and olive gray, moist, stiff, occasional bivalve mollusk shell fragments.	75	41
						Total Depth 71.5 Feet. Minor Water at 27 and 42.25 Feet.		

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 116-02
DATE STARTED: 9/1/11
DATE FINISHED: 9/1/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 49.5
KELLEY WT/DRIVE/DROP: 140 lb./30"
NOTES:

BORING DESIG. GB-8
LOGGED BY: BW
SHEET 1 OF 2

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft^3	MOISTURE CONTENT (%)
			B			**Artificial Fill (Af):** 0-12": Asphaltic Concrete and base material 12" to 4.5 feet: Silty Clay and Clayey Silt, dark brown, moist, stiff.		
5			R	6/8/9		**Terrace/Bay Deposits:** Silty Clay and Clayey Silt, brown and dark brown, slightly moist to moist, stiff.	102	22
			R	7/9/10		Silty Clay and Clayey Silt, brown and reddish brown, slightly moist to moist, stiff.	113	16
10			R	7/7/10		Silty Clay and Clayey Silt, brown and reddish brown, moist, stiff.	113	13
15			SPT	5/6/8		Clayey Silt and Sandy Silt, reddish brown, moist, stiff.		
20			R	9/13/15		Clayey Sand and Silty Sand, reddish brown to brown, moist dense.	105	15
25			SPT	6/7/9		Silty Clay and Sandy Clay, yellowish brown and reddish brown, moist, stiff.		
30			R	6/10/11		Silty Clay and Clay, olive brown and reddish brown, moist, stiff.		
35			SPT	5/6/7		Silty Clay and Sandy Clay, olive brown to brown, moist, soft to stiff, occasional bivalve shell fragments		
40			R	6/8/15		Silty Clay and Sandy Clay, olive brown to brown, moist, soft to stiff, occasional bivalve shell fragments	92	30

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 1016-02
DATE STARTED: 9/1/11
DATE FINISHED: 9/1/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 49.5
KELLEY WT/DRIVE/DROP: 140 lb./30"
NOTES:

BORING DESIG. GB-8
LOGGED BY: BW
SHEET 2 OF 2

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
40			R	8/10/14		Silty Clay and Sandy Clay, olive brown to brown, moist, soft to stiff, occasional bivalve shell fragments	92	30
45			SPT	12/20/32		Sand, olive gray to gray, mosit, dense to very dense.		
50			R	17/26/32		Sand, dark gray to gray, saturated, dense to very dense, frequent bivalve shell fragments.	113	16
						Total Depth 51.5 Feet. Water at 49 Feet.		

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 116-02
DATE STARTED: 9/1/11
DATE FINISHED: 9/1/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 49.5
KELLEY WT/DRIVE/DROP: 140 lb./30"
NOTES:

BORING DESIG. GB-9
LOGGED BY: BW
SHEET 1 OF 2

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
			B			**Artificial Fill (Af):** 0-12": Asphaltic Concrete and base material 12" to 4.5 feet: Silty Clay, dark brown, moist, stiff.		
5			R	6/8/10		**Terrace/Bay Deposits:** Silty Clay and Clayey Silt, reddish brown, gray and olive brown, moist, stiff. Occasional Sandy Clay lenses.	104	17
			R	5/6/12		Silty Clay and Clayey Silt, reddish brown, gray and olive brown, moist, stiff. Occasional Sandy Clay lenses.	107	19
10			R	8/10/16		Silty Clay and Clayey Silt, dark brown, slightly moist, porous, frequent rootlets.	109	11
15			SPT	9/16/20		Clay and Sandy Clay, reddish brown, moist, stiff to hard.		
20			R	5/7/14		Clay and lesser Silty Clay, light grayish white, moist, stiff, frequent secondary cartbonate nodules (leachate/hardpan).	96	20
25			SPT	5/7/8		Silty Sand and Clayey Sand, olive gray, reddish brown, and olive brown, moist, dense.		
30			R	5/6/8		Sand, light gray, saturated, dense, medium to coarse grained, well sorted/clean. Numerous bivalve fossils in basal portion (35-35.25 Feet)	116	11
35			SPT	7/10/16		Silty Clay and Sandy Clay, olive brown to olive gray, moist, stiff, occasional bivalve shell fragments		
40			R	6/8/15		Clay, dark bluish gray and dark gray, moist, stiff, plastic.	86	37

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 1016-02
DATE STARTED: 9/1/11
DATE FINISHED: 9/1/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 49.5
KELLEY WT/DRIVE/DROP: 140 lb./30"

BORING DESIG. GB-9
LOGGED BY: BW
SHEET 2 OF 2

NOTES:

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
40			R	6/8/15		Clay, dark bluish gray and dark gray, moist, stiff, plastic.	86	37
45			SPT	14/16/17		Clayey Sand, dark gray and bluish gray, saturated, dense, frequent bivalve mollusk shell fragments.		
50			R	11/19/22		Clayey Sand, dark gray and bluish gray, saturated, dense, frequent bivalve mollusk shell fragments.	110	20
55			SPT	10/11/17		Sandy Clay and Clay, dark gray very moist, stiff/dense, medium plastic		
60			R	17/20/25		Silty Sand, Sand and lesser Clay lenses, dark gray and light gray, very moist, dense.	104	22
65			SPT	27/50 for 5"		Sand, light gray, very moist, dense, medium to coarse grained, well sorted.		
70			R	20/36/50		Silty Sand, Sand, dark gray and light gray, very moist, dense.	100	22
						Total Depth 71.5 Feet. Minor Water at 24 and 68 Feet.		

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 116-02
DATE STARTED: 9/2/11
DATE FINISHED: 9/2/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 49.5
KELLEY WT/DRIVE/DROP: 140 lb./30"
NOTES:

BORING DESIG. GB-10
LOGGED BY: BW
SHEET 1 OF 2

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft^3	MOISTURE CONTENT (%)
			B			**Artificial Fill (Af):** 0-9": Asphaltic Concrete and base material 9" to 4 feet: Clayey Sand and Calyey Silt, reddish brown and brown, moist, stiff.		
5			R	8/11/12		**Terrace/Bay Deposits:** Clayey Sand, reddish brown and tan, slightly moist, dense, frequent carbonate nodules from 5.75 to 6 feet.	93	6
			R	7/8/14		Sand and Gravelly Sand, reddish brown and tan, dry to slightly moist, dense, occasional pebble clasts, clean, well sorted.	104	2
10			R	15/17/30		Sand, tan and grayish tan, slightly moist, dense, fine to medium-grained, micaceous.	108	1
15			SPT	10/12/22		Clayey Sand, reddish brown and olive brown, moist, dense, micaceous.		
20			R	10/10/16		Clayey Sand and Gravelly Sand, reddish brown and olive brown, slightly moist to moist, dense, micaceous.	105	13
25			SPT	12/14/18		Silty Clay and Clay, olive brown and reddish brown, moist, stiff.		
30			R	7/9/12		Silty Clay and Clay, olive brown and reddish brown, moist, stiff.	106	19
35			SPT	7/8/11		Silty Clay and Clay, brown to olive brown, moist, stiff, plastic, occasional fossil bivalve mollusk shell fragments..		
40			R	11/16/20		Clayey Sand and Sandy Clay, olive brown and yellowish brown, moist, stiff, medium plastic.	107	20

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 1016-02
DATE STARTED: 9/2/11
DATE FINISHED: 9/2/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 49.5
KELLEY WT/DRIVE/DROP: 140 lb./30"
NOTES:

BORING DESIG. GB-10
LOGGED BY: BW
SHEET 2 OF 2

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
40			R	11/16/20		Clayey Sand and Sandy Clay, olive brown and yellowish brown, moist, stiff, medium plastic.	107	20
45			SPT	7/9/12		Clayey Sand and Sandy Clay, olive brown and yellowish brown, moist, stiff, medium plastic.		
50			R	8/8/14		Silty Clay, greenish gray and bluish gray, moist, stiff, medium plastic.	101	23
						Total Depth 51.5 Feet. No Water.		

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 116-02
DATE STARTED: 9/1211
DATE FINISHED: 9/12/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 50.5
KELLEY WT/DRIVE/DROP: 140 lb./30"
BORING DESIG. GB-11
LOGGED BY: BW
SHEET 1 OF 2

NOTES: Hand Augered to 8.5 feet per Jazz Facilities Dept. request

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft^3	MOISTURE CONTENT (%)
						Artificial Fill (Af): 0-18": Asphaltic Concrete and base material. 18" to 8.5 feet: Trench shading sand from local sewer lateral. 8.5 to 12.5 feet: Silty Clay, dark brown, moist, stiff.		
5			B					
10			R	6/9/10		Clayey Sand and Sandy Clay, reddish brown, slightly moist, loose to medium dense.	109	14
						Terrace/Bay Deposits: Silty Sand and Sand, reddish brown to brown, moist, dense.		
15			SPT	4/5/7		Silty Sand and Fine-Grained Sand, reddish brown and brown, slightly moist to moist, loose to dense, micaceous.		
20			R	10/16/19		Sand, reddish brown, and olive brown, slightly moist to moist, dense, fine grained, micaceous.	118	9
25			SPT	16/18/19		Sand, olive brown and tan, moist, dense, fine grained, increasing moisture with depth. ▽ Water at approximately 28 feet		
30			R	8/10/17		Clay and Gravelly Sand, dark gray to light gray, very moist to saturated, dense, frequent bivalve shell fragments.	80	20
35			SPT	12/18/30		Gravelly Sand, light gray to medium gray, saturated, very dense, poor recovery (approx 50% of sample fell out of sampler)		
40			R	8/9/13		Gravelly Sand, gray, saturated, dense, coarse-grained, dark gray clay in sampler shoe (approx lower 2").	120	13

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 1016-02
DATE STARTED: 9/12/11
DATE FINISHED: 9/12/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 50.5
KELLEY WT/DRIVE/DROP: 140 lb./30"

BORING DESIG. GB-11
LOGGED BY: BW
SHEET 2 OF 2

NOTES:

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
40			R	8/9/13		Gravelly Sand, gray, saturated, dense, coarse-grained, dark gray clay in sampler shoe (approx lower 2").	120	13
45			SPT	7/10/13		Clay and lesser Clayey Sand, dark gray, very moist, stiff, frequent bivalve mollusk shell fragments.		
50			R	8/14/22		Clay and lesser Clayey Sand, dark gray, very moist, stiff, frequent bivalve mollusk shell fragments.	104	21
55			SPT	15/40/42		Sand, light gray and greenish gray, saturated, very dense, pervasive bivalve mollusk shell fragments from 55.5-56.5 feet		
60			R	38/50 for 5"		Sandstone (Topanga Fm?), yellowish tan to tan, slightly moist to moist, dense to hard, micaceous.	107	3
65			SPT	32/50 for 5"		Sandstone (Topanga Fm?), yellowish tan to reddish brown, slightly moist to moist, dense to hard, micaceous.		
70			R	38/50 for 5"		Sandstone (Topanga Fm?), yellowish tan to light brown, dry to slightly moist, very dense to hard, micaceous	104	2
						Total Depth 70.4 Feet. Water at 28 and 54 Feet.		

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 116-02
DATE STARTED: 9/911
DATE FINISHED: 9/9/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 51
KELLEY WT/DRIVE/DROP: 140 lb./30"
BORING DESIG. GB-12
LOGGED BY: BW
SHEET 1 OF 2

NOTES: Hand Augered to 8.5 feet per Jazz Facilities Dept. request

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
						Artificial Fill (Af): 0-12": Asphaltic Concrete and base material. 12" to 5 feet: Silty Clay and Clayey Silt, dark brown, moist, stiff.		
5			B			**Terrace/Bay Deposits:** Silty Clay and Clay, reddish brown to olive brown and olive gray, moist, stiff.		
10			R	8/11/17		Silty Clay and Clay, reddish brown to olive brown and olive gray, moist, stiff.	104	18
15			SPT	5/7/9		Silty Clay, olive brown and olive gray, moist, stiff.		
20			R	8/12/16		Silty Sand and lesser Clayey Sand, reddish brown, and olive brown, slightly moist to moist, dense, fine grained.	92	13
25			SPT	10/12/24		Sand and lesser Silty Sand, brown and tan, moist, dense.		
						▽ Water at approximately 29 feet		
30			R	10/13/30		No Recovery, saturated gravel/sand fell out of sampler.		
35			SPT	11/15/14		Sand and lesser Clayey Sand, brown and olive gray, very moist, dense, fine to medium grained, micaceous, frequent bivalve mollusk shell fragments.		
40			R	10/13/20		Clay, bluish gray, very moist, stiff, plastic, frequent bivalve mollusk shell fragments.	83	37

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 1016-02
DATE STARTED: 9/9/11
DATE FINISHED: 9/9/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 51
KELLEY WT/DRIVE/DROP: 140 lb./30"

BORING DESIG. GB-12
LOGGED BY: BW
SHEET 2 OF 2

NOTES:

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
40			R	10/13/20		Clay, bluish gray, very moist, stiff, plastic, frequent bivalve mollusk shell fragments.	83	37
45			SPT	5/5/6		Clay, bluish gray and dark gray, very moist, stiff, plastic, frequent bivalve mollusk shell fragments.		
50			R	10/14/1		Clay and Slity Clay, gray to bluish gray, very moist, stiff, very frequent bivalve mollusk shell fragments.	86	37
55			SPT	8/10/14		Clay and Sandy Clay, lgray and dark gray, saturated, dense, very frequent bivalve mollusk shell fragments.		
60			R	14/18/27		Sand and lesser Clayey Sand, gray to dark gray, saturated, dense to very dense, very frequent bivalve shell fragments.	106	22
65			SPT	10/18/21		Sand and lesser Clayey Sand, gray to dark gray, very moist, dense.		
70			R	42/50 for 5"		Sand and lesser Clayey Sand, gray to dark gray, slightly moist, dense to hard, medium to coarse grained, micaceous.	129	2
						Total Depth 70.4 Feet. Water at 28 and 54 Feet.		

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 116-02
DATE STARTED: 9/8/11
DATE FINISHED: 9/8/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 51.5
KELLEY WT/DRIVE/DROP: 140 lb./30"
BORING DESIG. GB-13
LOGGED BY: BW
SHEET 1 OF 2

NOTES: Hand Augered to 8.5 feet per Jazz Facilities Dept. request

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft^3	MOISTURE CONTENT (%)
						Artificial Fill (Af): 0-12": Grass and soil with underlying 4" thick pavers. 12" to 3.5 feet: Silty Clay and Clayey Silt, brown, moist, stiff.		
5						**Terrace/Bay Deposits:** Sand, yellowish tan and tan, slightly moist, medium dense, fine grained, micaceous.		
10			R	6/8/13		Sand, yellowish tan and tan, slightly moist, medium dense, fine grained, micaceous.	91	12
15			SPT	4/6/9		Clayey Silt and Silty Clay, brown, reddish brown and olive gray, moist, stiff, medium plastic.		
20			R	6/8/9		Silty Clay, olive brown and olive gray, moist, stiff.	103	21
25			SPT	6/11/18		Silty Clay, olive brown and olive gray, moist, stiff (to 26 feet) @ 26 feet; Sand, reddish brown, very moist to saturated, dense, fine grained.		
30			R	11/16/29		Clayey Sand and Clay, olive gray to bluish gray, moist to very moist, stiff.	85	36
35			SPT	6/7/9		Clay and Sandy Clay, olive gray, bluish gray and olive brown, moist, stiff, plastic occasional bivalve mollusk shell fragments..		
40			R	5/7/14		Clay and Silty Clay, dark bluish gray, moist, stiff, plastic.	85	35

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 1016-02
DATE STARTED: 9/8/11
DATE FINISHED: 9/8/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 51.5
KELLEY WT/DRIVE/DROP: 140 lb./30"

BORING DESIG. GB-13
LOGGED BY: BW
SHEET 2 OF 2

NOTES:

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
40			R	5/7/14		Clay and Silty Clay, dark bluish gray, moist, stiff, plastic.	85	35
45			SPT	6/9/13		Silty Clay, dark bluish gray, moist, stiff, plastic.		
50			R	8/20/50 for 5"		Clayey Sand and Sand, dark gray to olive gray, very moist, dense to very dense.	116	13
						Total Depth 51.5 Feet. Minor Water at 26.5 Feet.		

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 116-02
DATE STARTED: 9/1/11
DATE FINISHED: 9/1/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 50
KELLEY WT/DRIVE/DROP: 140 lb./30"
NOTES:

BORING DESIG. GB-14
LOGGED BY: BW
SHEET 1 OF 2

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft^3	MOISTURE CONTENT (%)
						Artificial Fill (Af): 0-9": Asphaltic Concrete and base material. 9" to 1.75 feet: Clayey Silt, brown and yellowish brown, moist, stiff. Carbonate nodules near contact		
			B			**Terrace/Bay Deposits:**		
5			R	7/13/15		Silty Sand and Clayey Sand, reddish brown, olive brown and grayish tan, moist, dense, very fine grained.	116	5
			R	6/10/13		Silty Sand and Clayey Sand, reddish brown, yellowish brown and olive gray, moist, dense, very fine grained.	97	23
10			R	8/11/15		Silty Sand and Clayey Sand, reddish brown, yellowish brown and olive gray, moist, dense, very fine grained.	100	23
15			SPT	7/7/12		Sandy Clay, olive brown to brown, moist, stiff		
20			R	9/14/20		Sand, light grayish tan and yellowish tan, slightly moist to moist, dense, fine to medium grained.	94	11
25			SPT	10/11/17		Sand, light grayish tan, slightly moist to moist, dense, fine to medium grained.		
30			R	8/8/11		Clay and Silty Clay, dark gray to dark greenish gray, moist, soft to stiff, very frequent bivalve mollusk shell fragments.	88	33
35			SPT	5/5/7		Clay and Silty Clay, dark greenish gray, moist, soft to stiff, very frequent bivalve mollusk shell fragments.		
40			R	6/8/9		Clay, dark gray, moist to very moist, stiff, plastic	84	36

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 1016-02
DATE STARTED: 8/29/11
DATE FINISHED: 8/29/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 50
KELLEY WT/DRIVE/DROP: 140 lb./30"

BORING DESIG. GB-14
LOGGED BY: BW
SHEET 2 OF 2

NOTES:

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
40			R	6/8/9		Clay, dark gray, moist to very moist, stiff, plastic	84	36
45			SPT	5/7/8		Sandy Clay and Clayey Sand, light gray to dark gray, very moist, stiff, micaceous.		
50			R	10/29/50 for 3"		Sand, light grayish tan and tan, slightly moist to moist, dense to hard, micaceous, medium grained, well sorted.	101	7
55			SPT	15/26/30		Sand, tan and brownish tan, slightly moist to moist, dense, fine grained, micaceous.		
60			R	18/20/25		Sand, light gray, vslightly moist to moist, dense, fine to medium grained, micaceous.	105	15
65			SPT	9/10/22		Sand, light gray, vslightly moist to moist, dense, fine to medium grained, micaceous.		
70			SPT	19/25/35		Sand, light gray, vslightly moist to moist, dense, fine to medium grained, micaceous.		
						Total Depth 71.5 Feet. No Water.		

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 116-02
DATE STARTED: 9/7/11
DATE FINISHED: 9/7/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 50.5
KELLEY WT/DRIVE/DROP: 140 lb./30"
NOTES:

BORING DESIG. GB-15
LOGGED BY: BW
SHEET 1 OF 2

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
			B			**Artificial Fill (Af):** 0-10": Asphaltic Concrete and base material. 10" to 4.75 feet: Clayey Sand and Sandy Clay, brown to dark brown, moist, stiff.		
5			R	6/10/11		**Terrace/Bay Deposits:** Silty Sand, reddish brown to yellowish brown, moist, dense.	105	19
			R	7/11/15		Sand, yellowish brown and olive brown, to moist, dense, micaceous.	111	10
10			R	6/11/19		Silty Sand and Clayey Sand, brown and olive brown, moist, dense, micaceous, fine-grained.	100	24
15			R	5/8/9		Clayey Silt and Clayey Sand, brown and olive brown, moist, dense/stiff, micaceous.	91	28
20			SPT	5/6/5		Silty Sand and lesser Clayey Sand,olive brown and yellowish brown, moist, soft/loose to medium dense, micaceous.		
25			R	10/14/22		Sand and lesser Clayey Sand, brownish yellow, moist, dense, micaceous.	106	12
30			SPT	14/20/30		Sand, yellowish brown, slightly moist, dense, fine to medium grained, clean, micaceous.		
35			R	6/8/10		Clay, bluish gray and olive gray, moist, stiff, plastic, fossil bivalve mollusk shell fragments.	84	34
40			SPT	6/7/9		Clay, bluish gray and olive gray, moist, stiff, plastic, fossil bivalve mollusk shell fragments.		

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 1016-02
DATE STARTED: 9/7/11
DATE FINISHED: 9/7/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 50.5
KELLEY WT/DRIVE/DROP: 140 lb./30"

BORING DESIG. GB-15
LOGGED BY: BW
SHEET 2 OF 2

NOTES:

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
40			SPT	6/7/9		Clay, bluish gray and olive gray, moist, stiff, plastic, fossil bivalve mollusk shell fragments.		
45			R	7/7/10		Clay and Silty Clay, dark bluish gray, very moist, stiff, occasional bivalve mollusk shell fragments.	102	24
50			SPT	10/16/24		Silty Sand and lesser Clayey Sand, gray and light gray, moist, dense.		
						Total Depth 51.5 Feet. No Water.		

GINTER AND ASSOCIATES, INC
LOG OF EXPLORATORY BORING

PROJECT #: 116-02
DATE STARTED: 9/8/11
DATE FINISHED: 9/8/11
DRILLER: Gregg
TYPE OF DRILL RIG: Hollow Stem

PROJECT NAME: Upper Newport Village
GROUND ELEV: 49
KELLEY WT/DRIVE/DROP: 140 lb./30"
BORING DESIG. GB-16
LOGGED BY: BW
SHEET 1 OF 2

NOTES: Hand Augered to 8 feet per Jazz Facilities Dept. request

DEPTH (ft.)	ELEV. (ft.)	CLASSIFICATION	SAMPLE TYPE	BLOWS/6"	GRAPHIC LOG	DESCRIPTION	DRY DENSITY lb/ft³	MOISTURE CONTENT (%)
			B			**Artificial Fill (Af):** 0-10": Asphaltic Concrete and base material. 10" to 3.75 feet: Silty Clay and Clayey Silt, dark brown, moist, stiff.		
5						**Terrace/Bay Deposits:** Sand, reddish brown to yellowish brown, moist, dense.		
10			R	8/22/28		Sand, reddish brown to yellowish brown, slightly moist, dense to very dense, micaceous, fine grained.	99	8
15			SPT	7/8/11		Sand and Clayey Sand, grayish brown and yellowish brown, moist, dense.		
20			R	8/9/16		Sandy Clay and Silty Clay, olive brown and brown, moist, stiff.	106	20
25			SPT	10/16/25		Sand and Clayey Sand, olive brown and yellowish brown, moist, dense, micacous, fine to medium grained.		
30			R	6/9/10		Clay, bluish gray and olive gray, moist, stiff, plastic, fossil bivalve mollusk shell fragments.	89	32
35			SPT	5/5/6		Clay, bluish gray and olive gray, moist, stiff, plastic, frequent fossil bivalve mollusk shell fragments.		
40			R	7/10/13		Clay, bluish gray and olive gray, moist, stiff, plastic, frequent fossil bivalve mollusk shell fragments.	87	32

APPENDIX III

CONE PENETROMETER TESTS ASSIGNED BY GINTER & ASSOCIATES, INC.

GREGG DRILLING & TESTING, INC.
GEOTECHNICAL AND ENVIRONMENTAL INVESTIGATION SERVICES

August 23, 2011

Ginter & Associates
Attn: Brian Weatherby

Subject: CPT Site Investigation
Uptown Newport Village
Newport Beach, California
GREGG Project Number: 11-602SH

Dear Mr. Weatherby:

The following report presents the results of GREGG Drilling & Testing's Cone Penetration Test investigation for the above referenced site. The following testing services were performed:

1	Cone Penetration Tests	(CPTU)	☒
2	Pore Pressure Dissipation Tests	(PPD)	☒
3	Seismic Cone Penetration Tests	(SCPTU)	☐
4	UVOST Laser Induced Fluorescence	(UVOST)	☐
5	Groundwater Sampling	(GWS)	☐
6	Soil Sampling	(SS)	☐
7	Vapor Sampling	(VS)	☐
8	Pressuremeter Testing	(PMT)	☐
9	Vane Shear Testing	(VST)	☐
10	Dilatometer Testing	(DMT)	☐

A list of reference papers providing additional background on the specific tests conducted is provided in the bibliography following the text of the report. If you would like a copy of any of these publications or should you have any questions or comments regarding the contents of this report, please do not hesitate to contact our office at (562) 427-6899.

Sincerely,

Peter Robertson
Technical Director, Gregg Drilling & Testing, Inc.

Cone Penetration Test Sounding Summary

-Table 1-

CPT Sounding Identification	Date	Termination Depth (Feet)	Depth of Groundwater Samples (Feet)	Depth of Soil Samples (Feet)	Depth of Pore Pressure Dissipation Tests (Feet)
CPT-1	8/19/11	65	-	-	54.8
CPT-2	8/19/11	70	-	-	47.2
CPT-3	8/19/11	30	-	-	-
CPT-3A	8/22/11	27	-	-	27.4
CPT-4	8/19/11	65	-	-	38.4
CPT-5A	8/22/11	33	-	-	33.0
CPT-8	8/19/11	68	-	-	65.1

Bibliography

Lunne, T., Robertson, P.K. and Powell, J.J.M., "Cone Penetration Testing in Geotechnical Practice" E & FN Spon. ISBN 0 419 23750, 1997

Roberston, P.K., "Soil Classification using the Cone Penetration Test", Canadian Geotechnical Journal, Vol. 27, 1990 pp. 151-158.

Mayne, P.W., "NHI (2002) Manual on Subsurface Investigations: Geotechnical Site Characterization", available through www.ce.gatech.edu/~geosys/Faculty/Mayne/papers/index.html, Section 5.3, pp. 107-112.

Robertson, P.K., R.G. Campanella, D. Gillespie and A. Rice, "Seismic CPT to Measure In-Situ Shear Wave Velocity", Journal of Geotechnical Engineering ASCE, Vol. 112, No. 8, 1986 pp. 791-803.

Robertson, P.K., Sully, J., Woeller, D.J., Lunne, T., Powell, J.J.M., and Gillespie, D.J., "Guidelines for Estimating Consolidation Parameters in Soils from Piezocone Tests", Canadian Geotechnical Journal, Vol. 29, No. 4, August 1992, pp. 539-550.

Robertson, P.K., T. Lunne and J.J.M. Powell, "Geo-Environmental Application of Penetration Testing", Geotechnical Site Characterization, Robertson & Mayne (editors), 1998 Balkema, Rotterdam, ISBN 90 5410 939 4 pp 35-47.

Campanella, R.G. and I. Weemees, "Development and Use of An Electrical Resistivity Cone for Groundwater Contamination Studies", Canadian Geotechnical Journal, Vol. 27 No. 5, 1990 pp. 557-567.

DeGroot, D.J. and A.J. Lutenegger, "Reliability of Soil Gas Sampling and Characterization Techniques", International Site Characterization Conference - Atlanta, 1998.

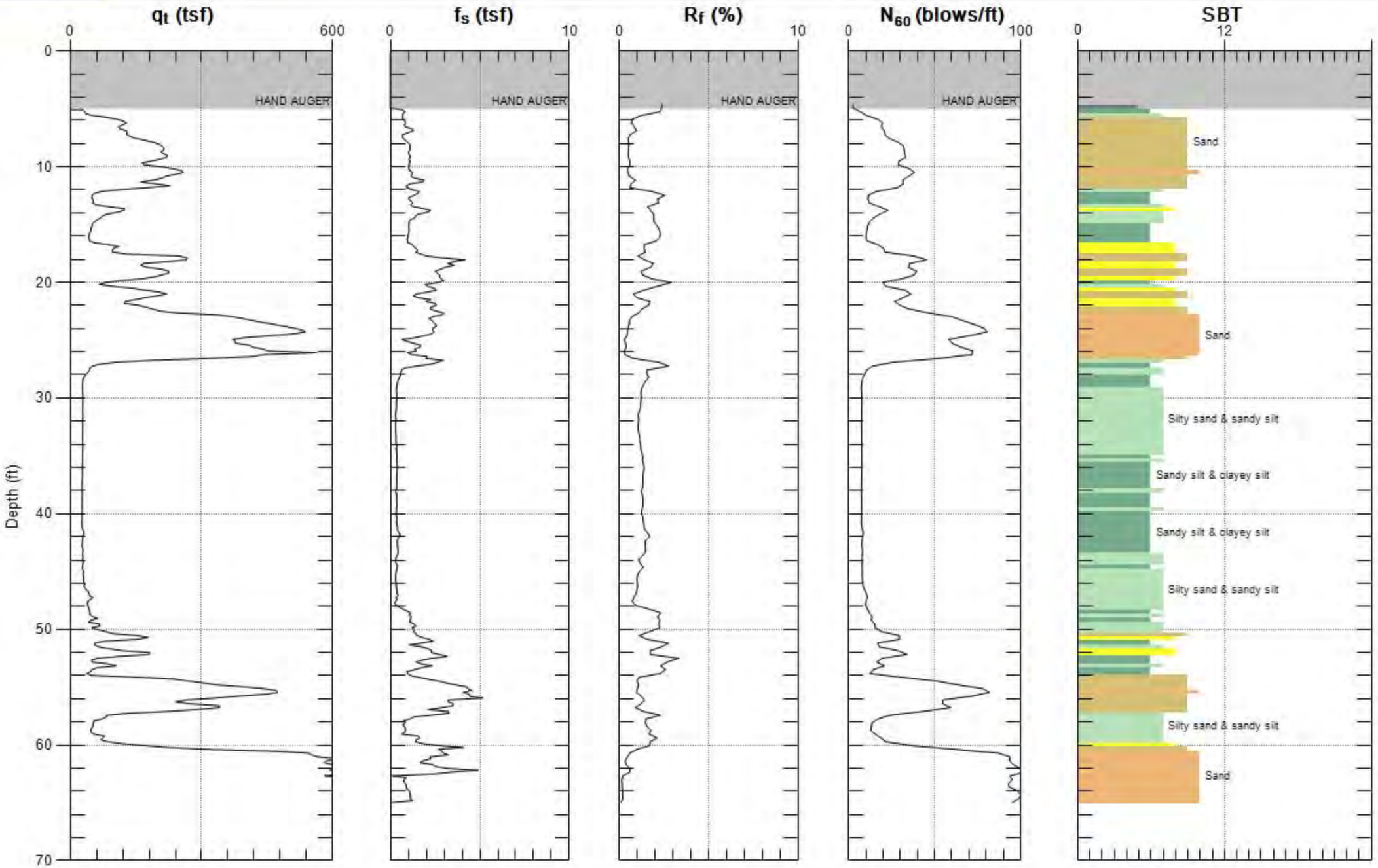
Woeller, D.J., P.K. Robertson, T.J. Boyd and Dave Thomas, "Detection of Polyaromatic Hydrocarbon Contaminants Using the UVIF-CPT", 53rd Canadian Geotechnical Conference Montreal, QC October pp. 733-739, 2000.

Zemo, D.A., T.A. Delfino, J.D. Gallinatti, V.A. Baker and L.R. Hilpert, "Field Comparison of Analytical Results from Discrete-Depth Groundwater Samplers" BAT EnviroProbe and QED HydroPunch, Sixth national Outdoor Action Conference, Las Vegas, Nevada Proceedings, 1992, pp 299-312.

Copies of ASTM Standards are available through www.astm.org

GINTER & ASSOC.

Site: UPTOWN NEWPORT
Sounding: CPT 1
Engineer: B.WEATHERBY
Date: 8/19/2011 07:27



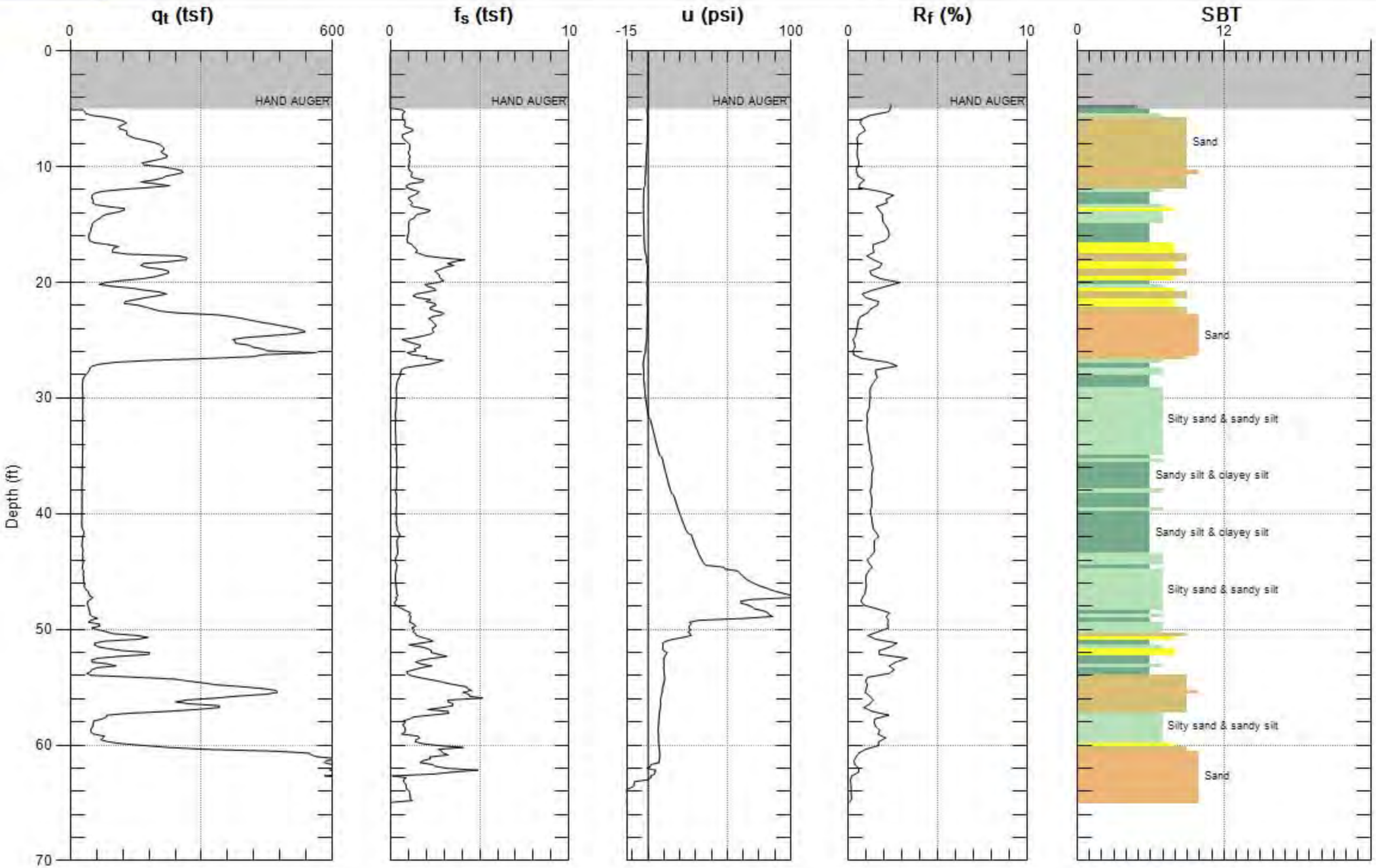
Max. Depth: 65.125 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GINTER & ASSOC.

Site: UPTOWN NEWPORT
Sounding: CPT 1

Engineer: B.WEATHERBY
Date: 8/19/2011 07:27

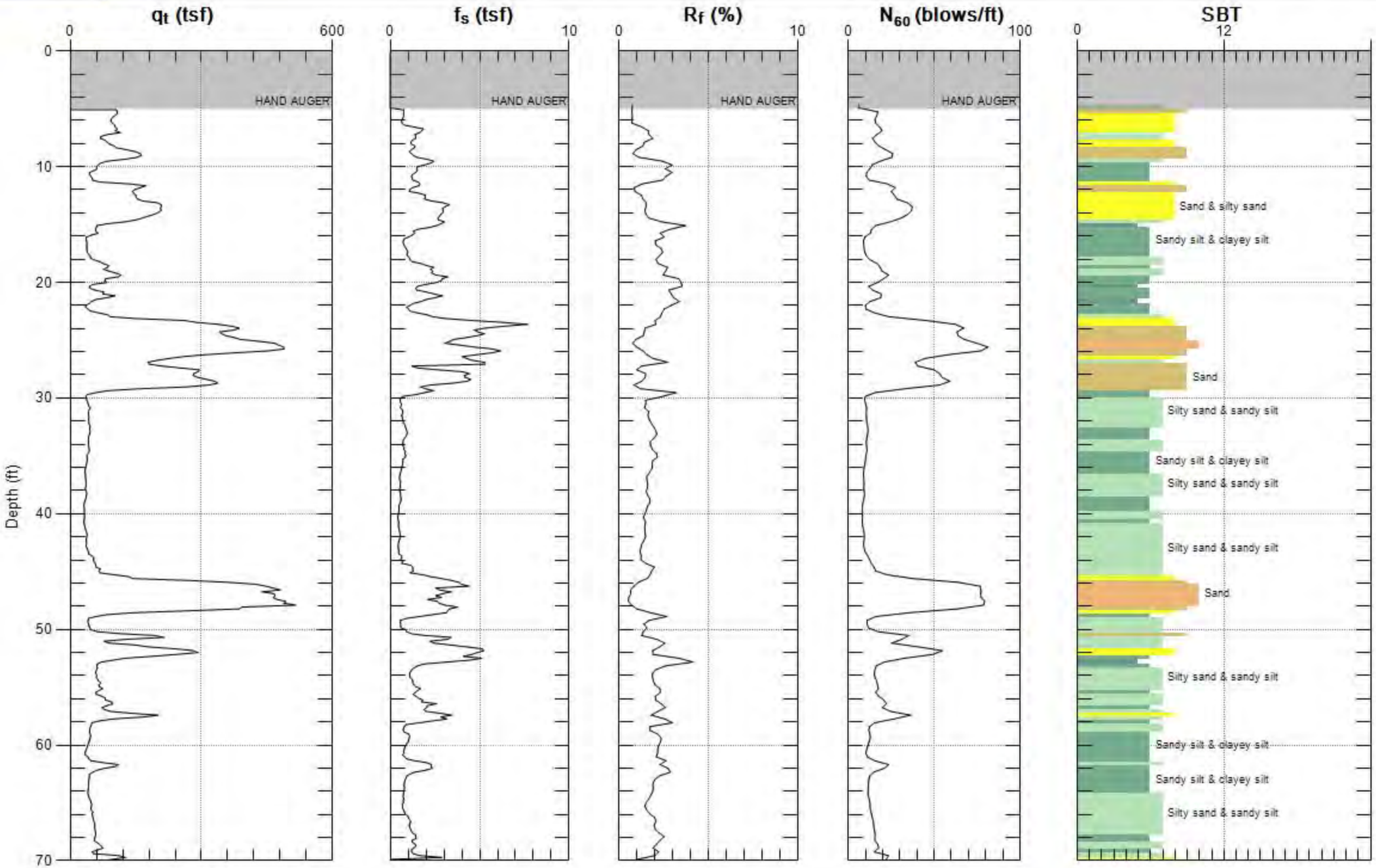


Max. Depth: 65.125 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GINTER & ASSOC.

Site: UPTOWN NEWPORT
Sounding: CPT 2
Engineer: B.WEATHERBY
Date: 8/19/2011 12:31



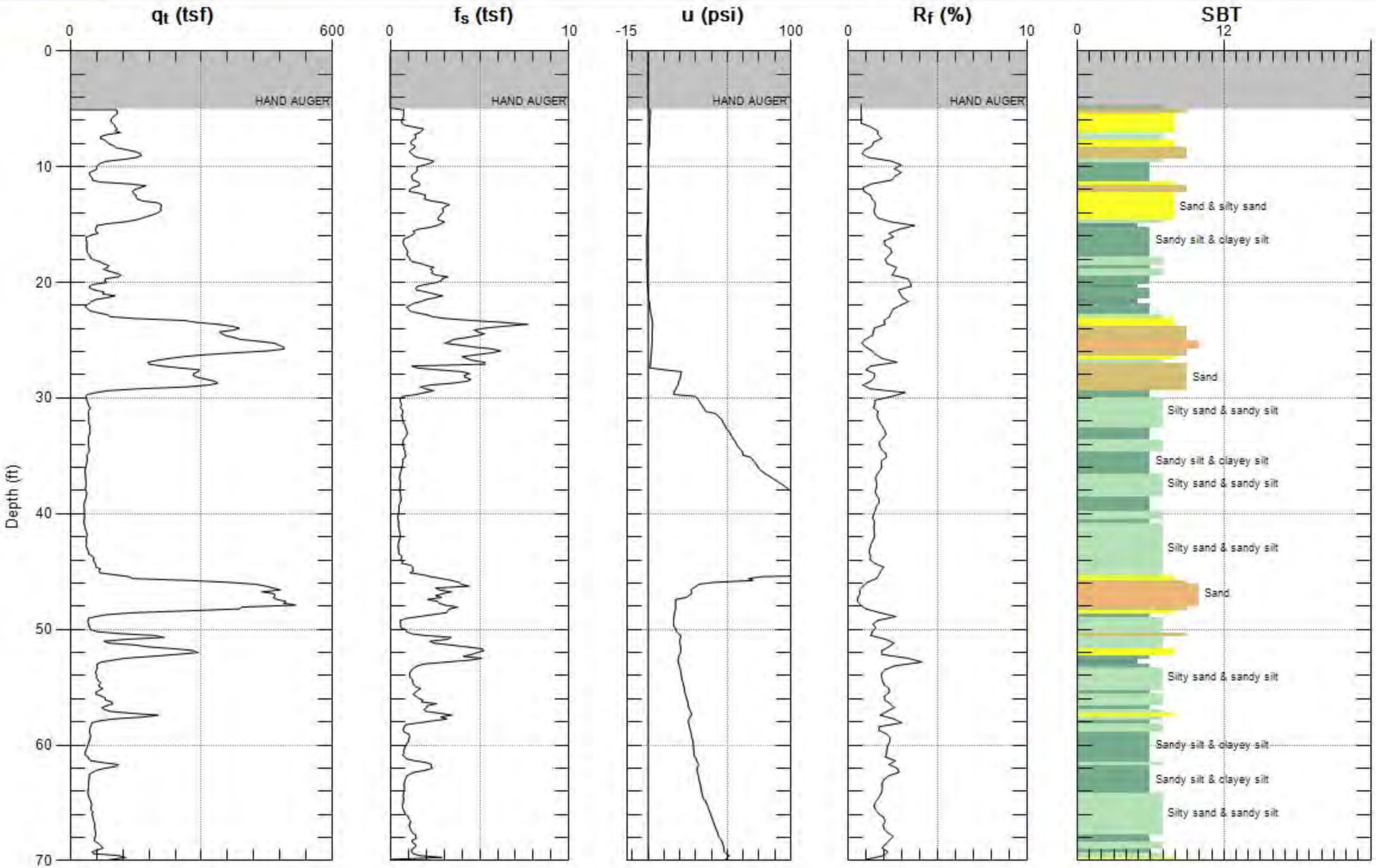
Max. Depth: 70.046 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GINTER & ASSOC.

Site: UPTOWN NEWPORT
Sounding: CPT 2

Engineer: B.WEATHERBY
Date: 8/19/2011 12:31



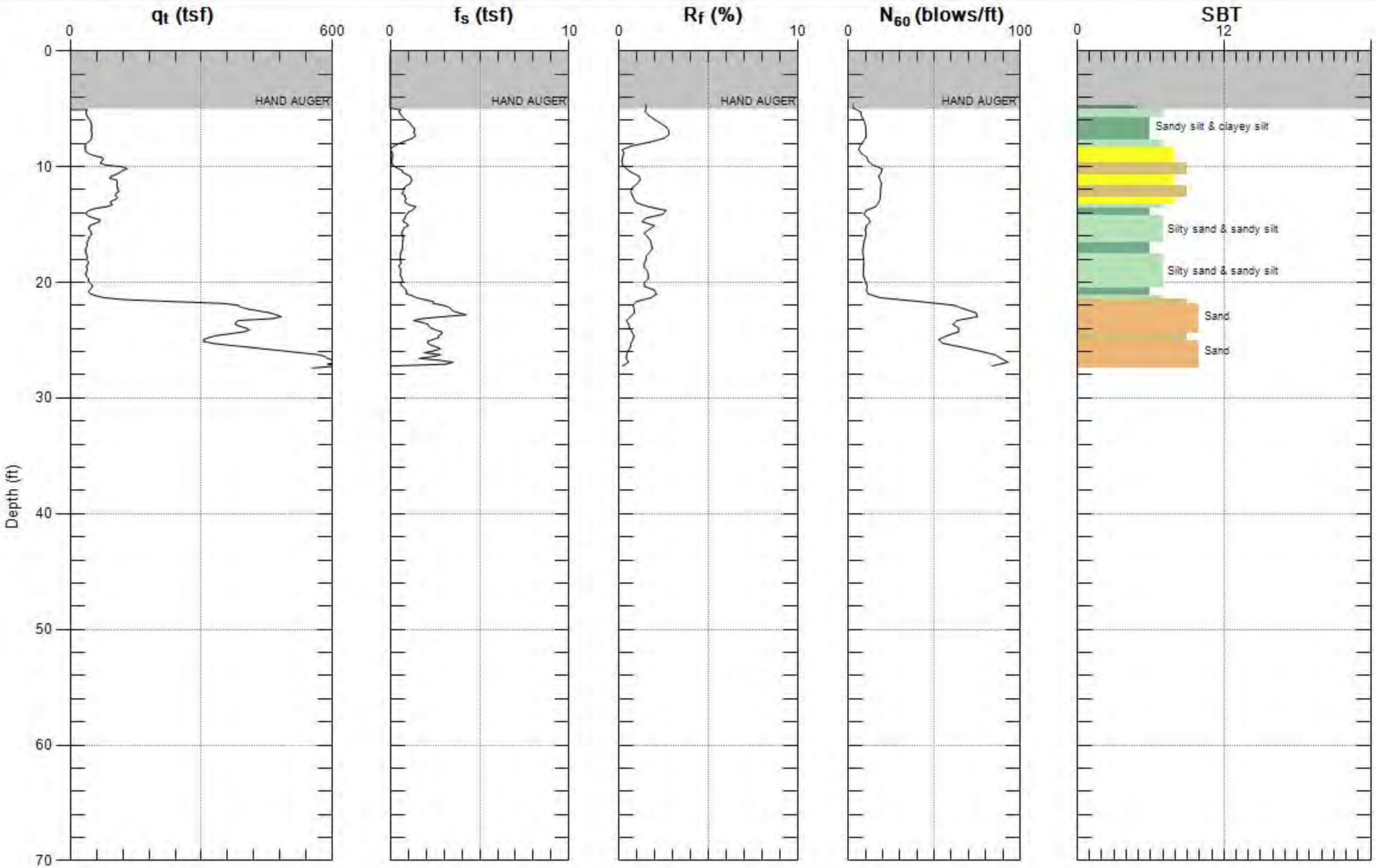
Max. Depth: 70.046 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GINTER & ASSOC.

Site: UPTOWN NEWPORT
Sounding: CPT 3A

Engineer: B.WEATHERBY
Date: 8/22/2011 10:10



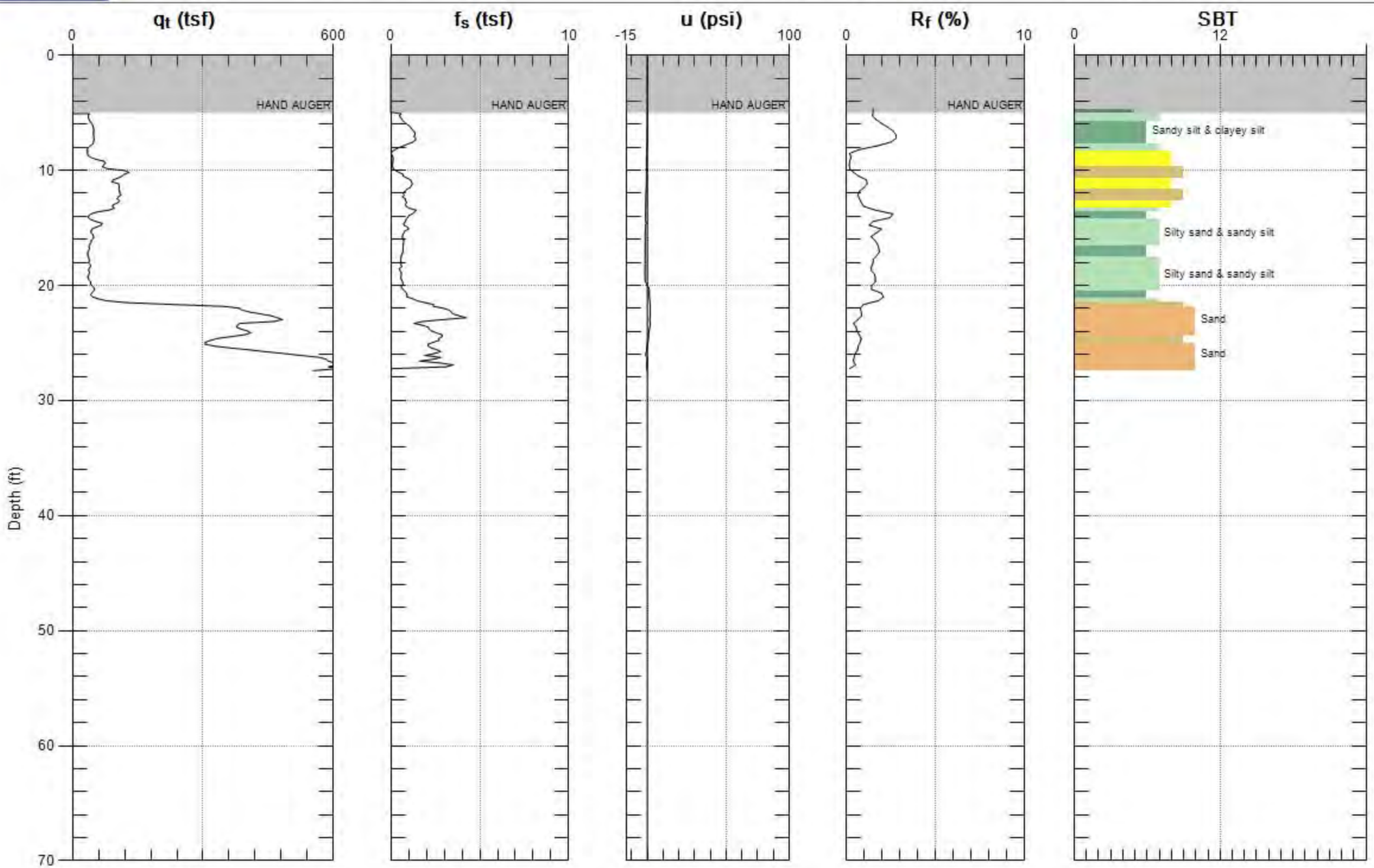
Max. Depth: 27.395 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GINTER & ASSOC.

Site: UPTOWN NEWPORT **Engineer: B.WEATHERBY**

Sounding: CPT 3A **Date: 8/22/2011 10:10**



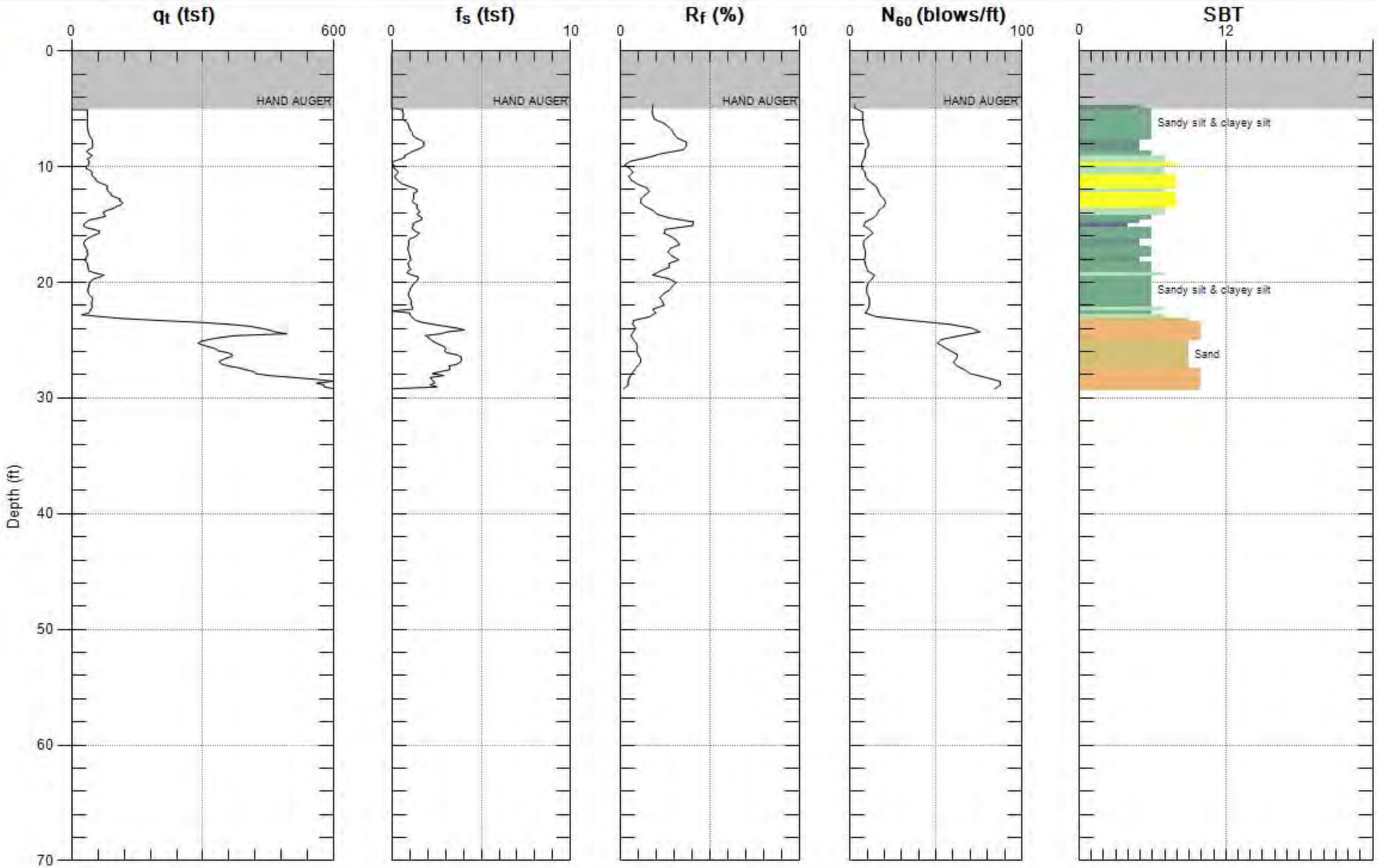
Max. Depth: 27.395 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GINTER & ASSOC.

Site: UPTOWN NEWPORT
Sounding: CPT 3

Engineer: B.WEATHERBY
Date: 8/19/2011 03:33



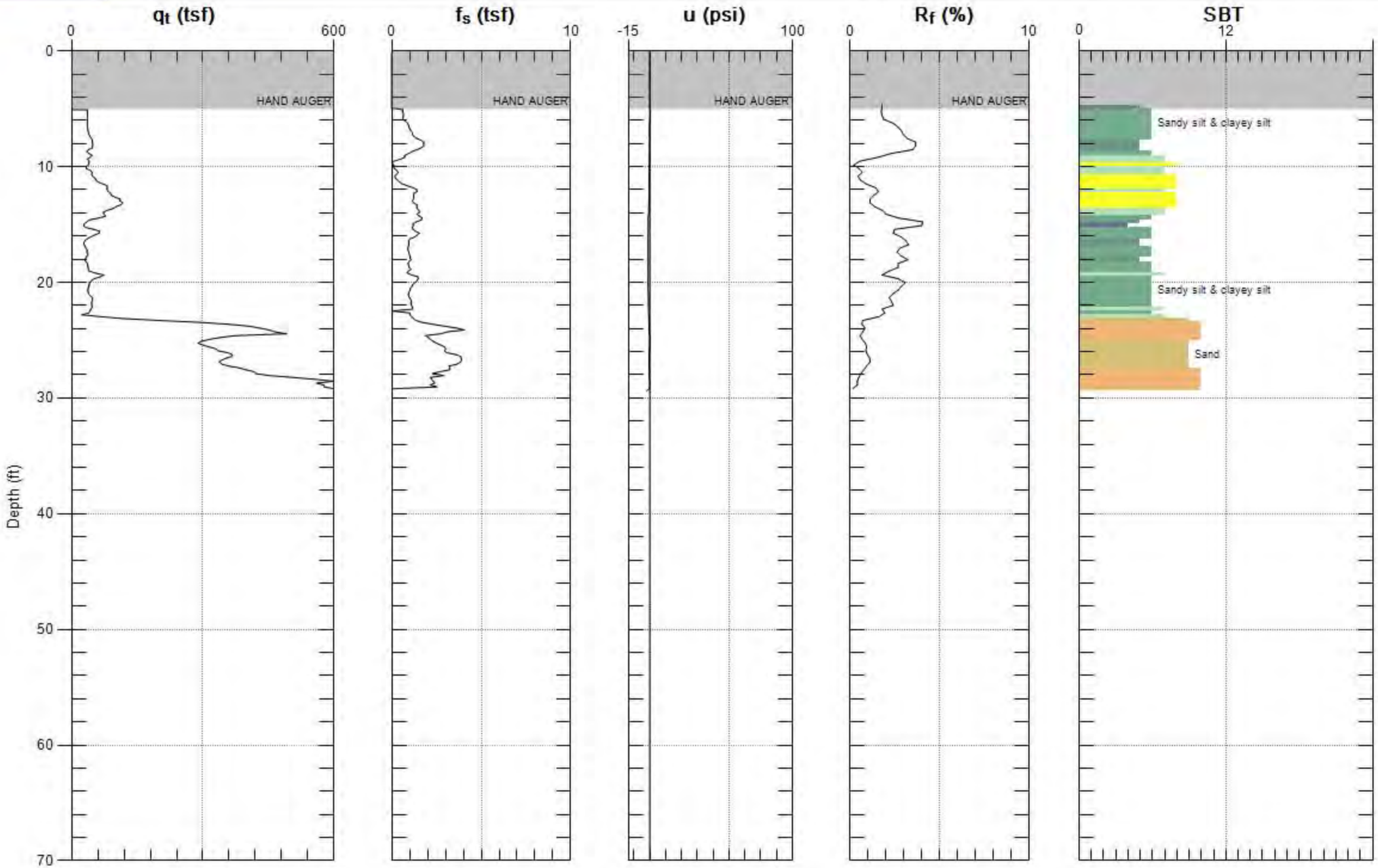
Max. Depth: 29.364 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GINTER & ASSOC.

Site: UPTOWN NEWPORT
Sounding: CPT 3

Engineer: B.WEATHERBY
Date: 8/19/2011 03:33



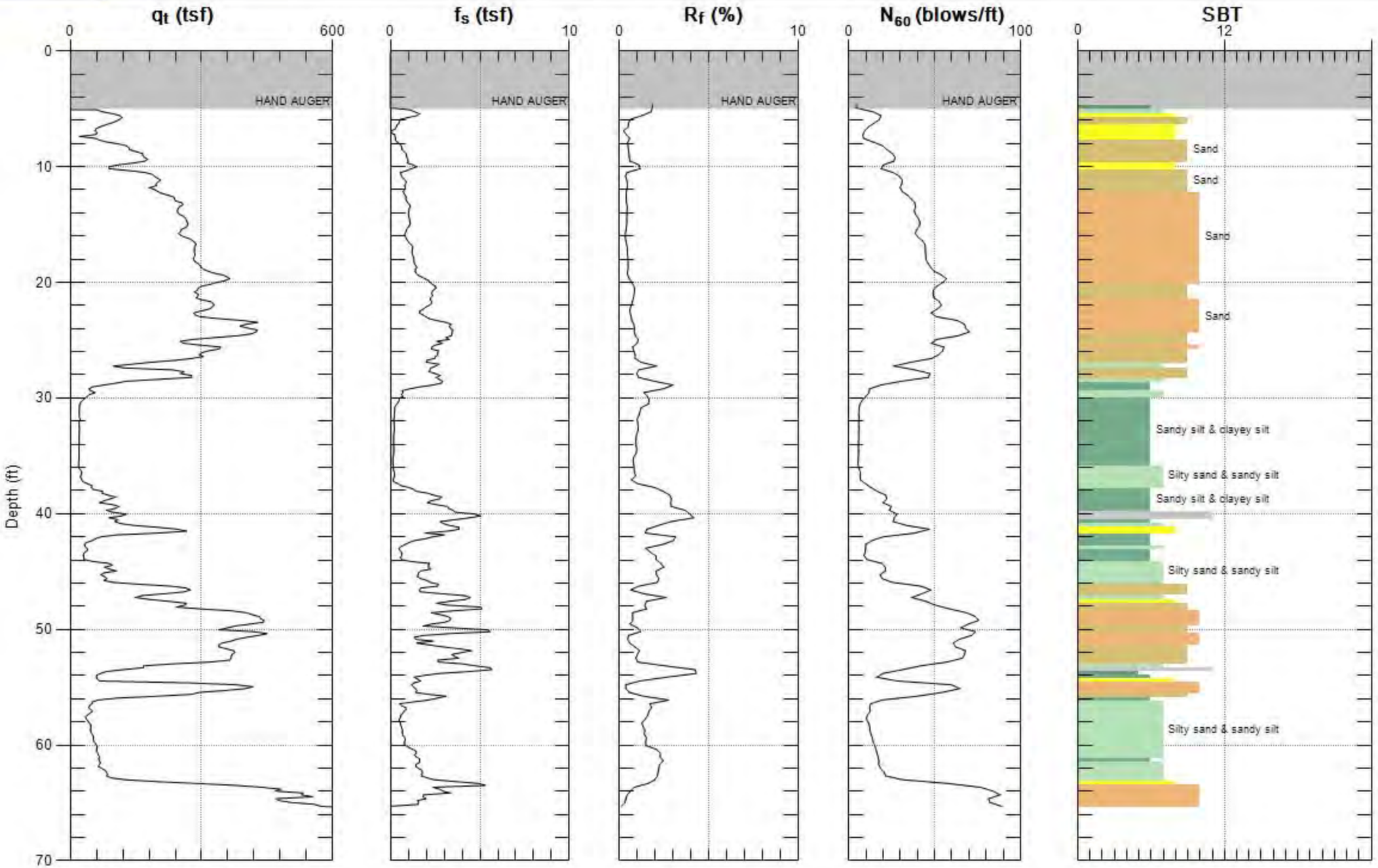
Max. Depth: 29.364 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GINTER & ASSOC.

Site: UPTOWN NEWPORT
Sounding: CPT 4

Engineer: B.WEATHERBY
Date: 8/19/2011 01:36



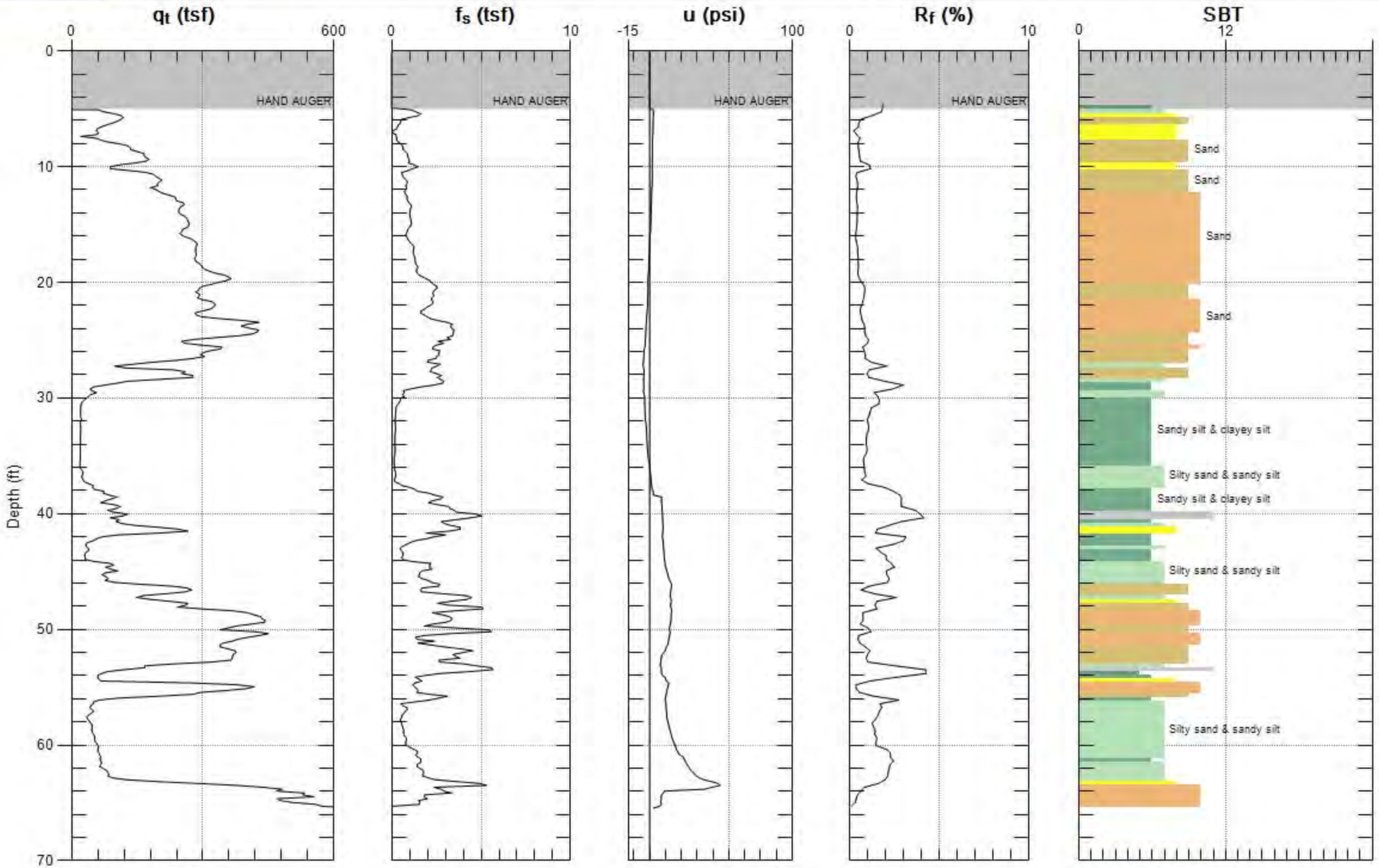
Max. Depth: 65.453 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GINTER & ASSOC.

Site: UPTOWN NEWPORT
Sounding: CPT 4

Engineer: B.WEATHERBY
Date: 8/19/2011 01:36



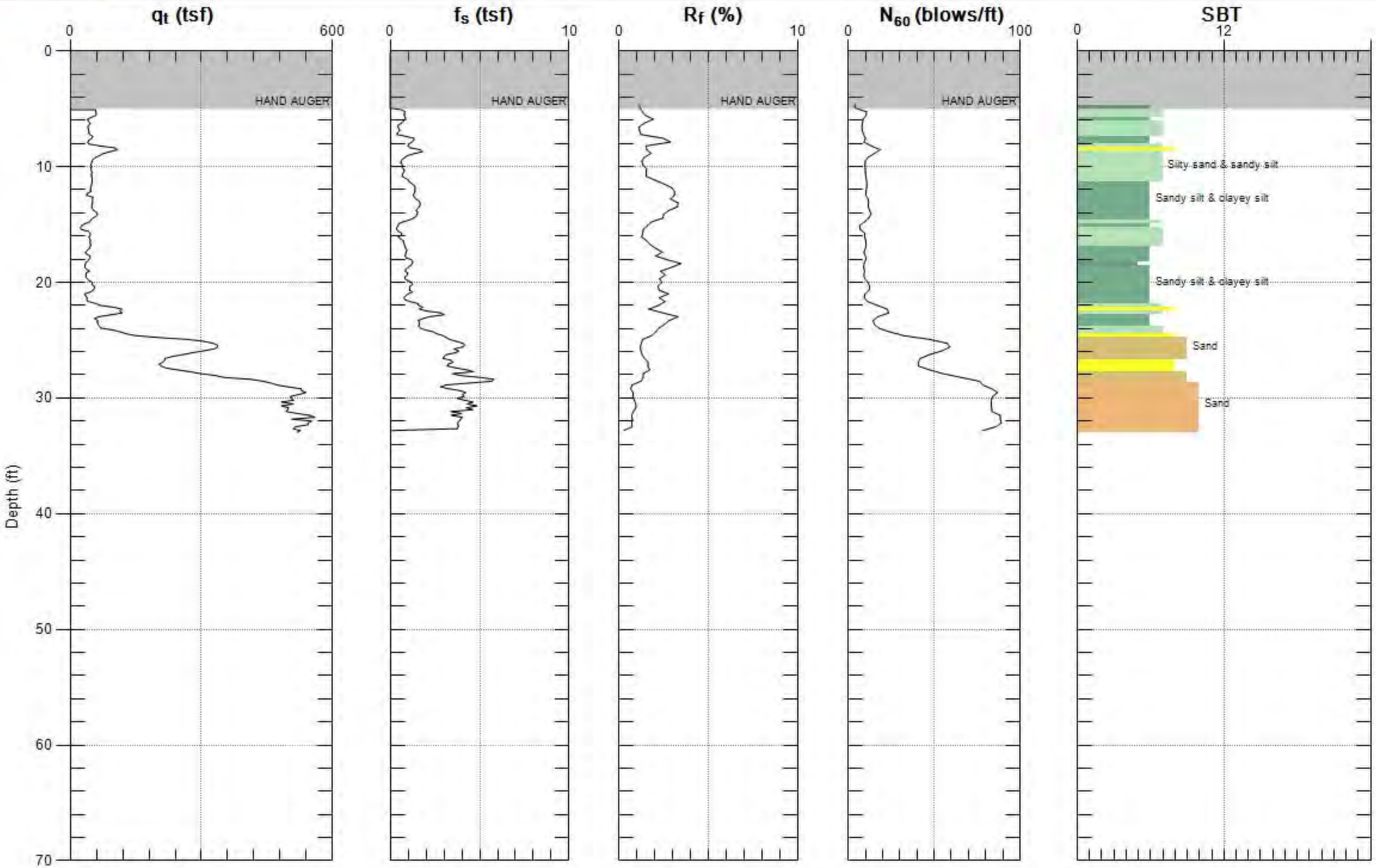
Max. Depth: 65.453 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GINTER & ASSOC.

Site: UPTOWN NEWPORT
Sounding: CPT 5A

Engineer: B.WEATHERBY
Date: 8/22/2011 07:26



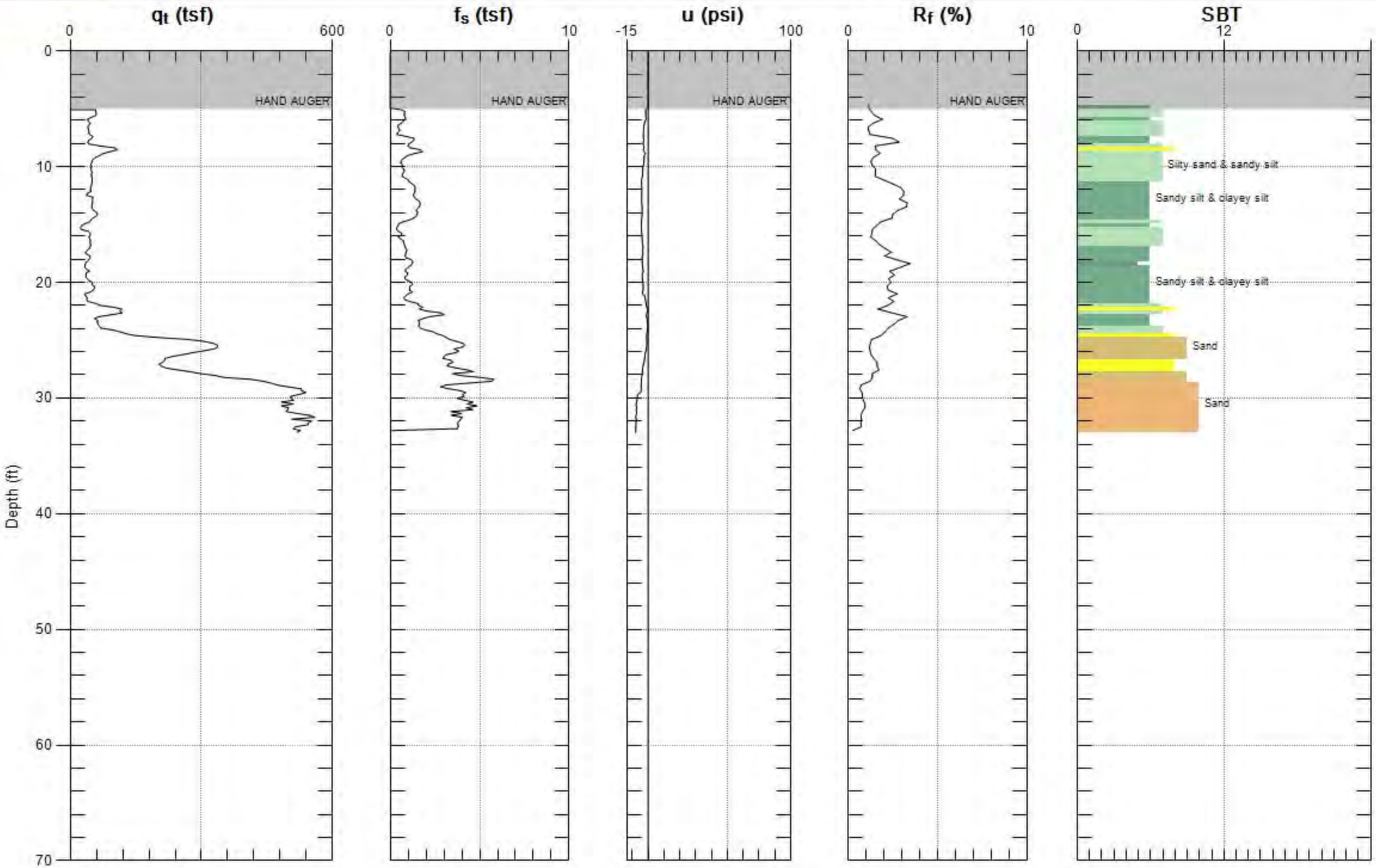
Max. Depth: 32.972 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GINTER & ASSOC.

Site: UPTOWN NEWPORT
Sounding: CPT 5A

Engineer: B.WEATHERBY
Date: 8/22/2011 07:26



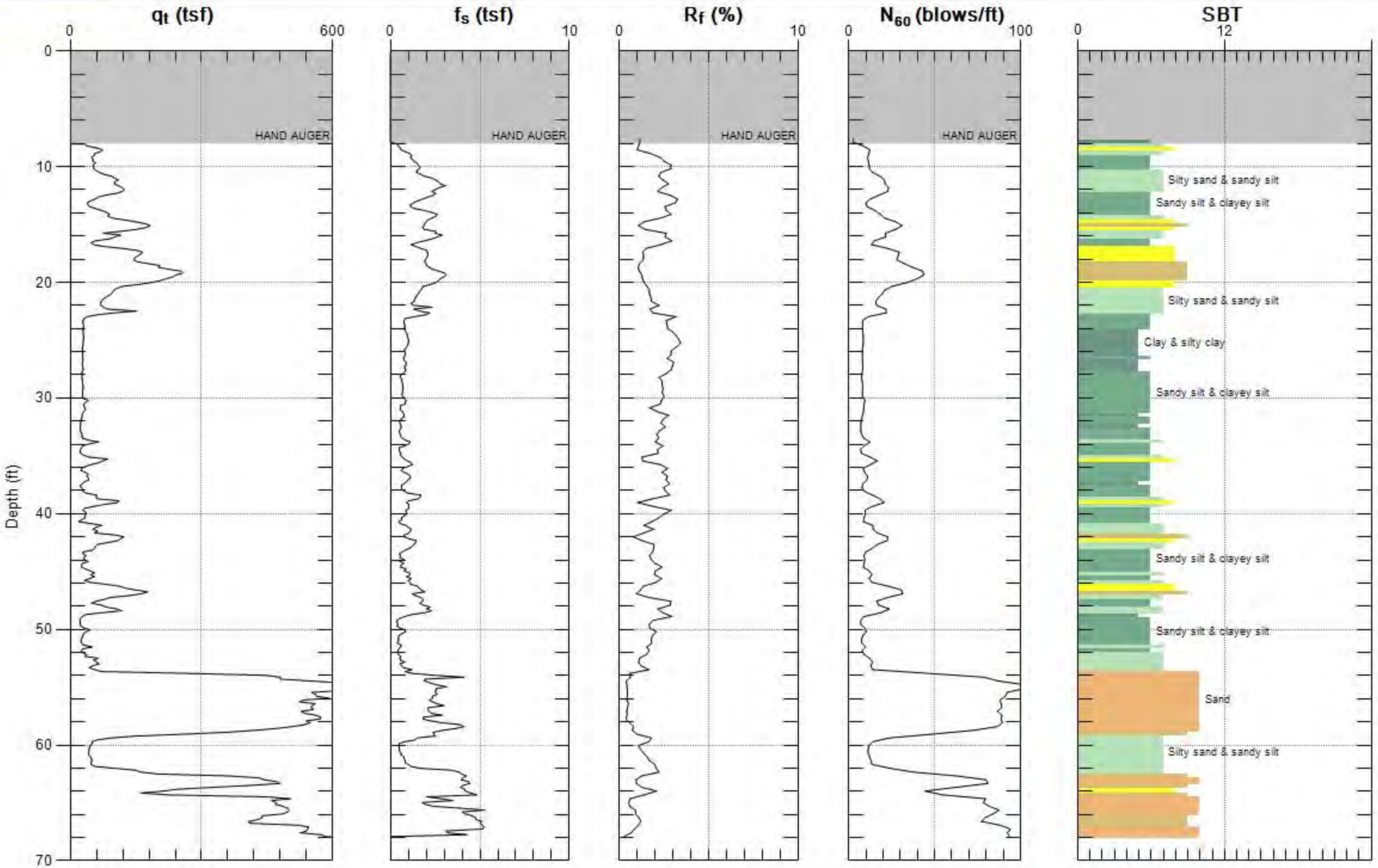
Max. Depth: 32.972 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GINTER & ASSOC.

Site: UPTOWN NEWPORT
Sounding: CPT 8

Engineer: B.WEATHERBY
Date: 8/19/2011 10:29



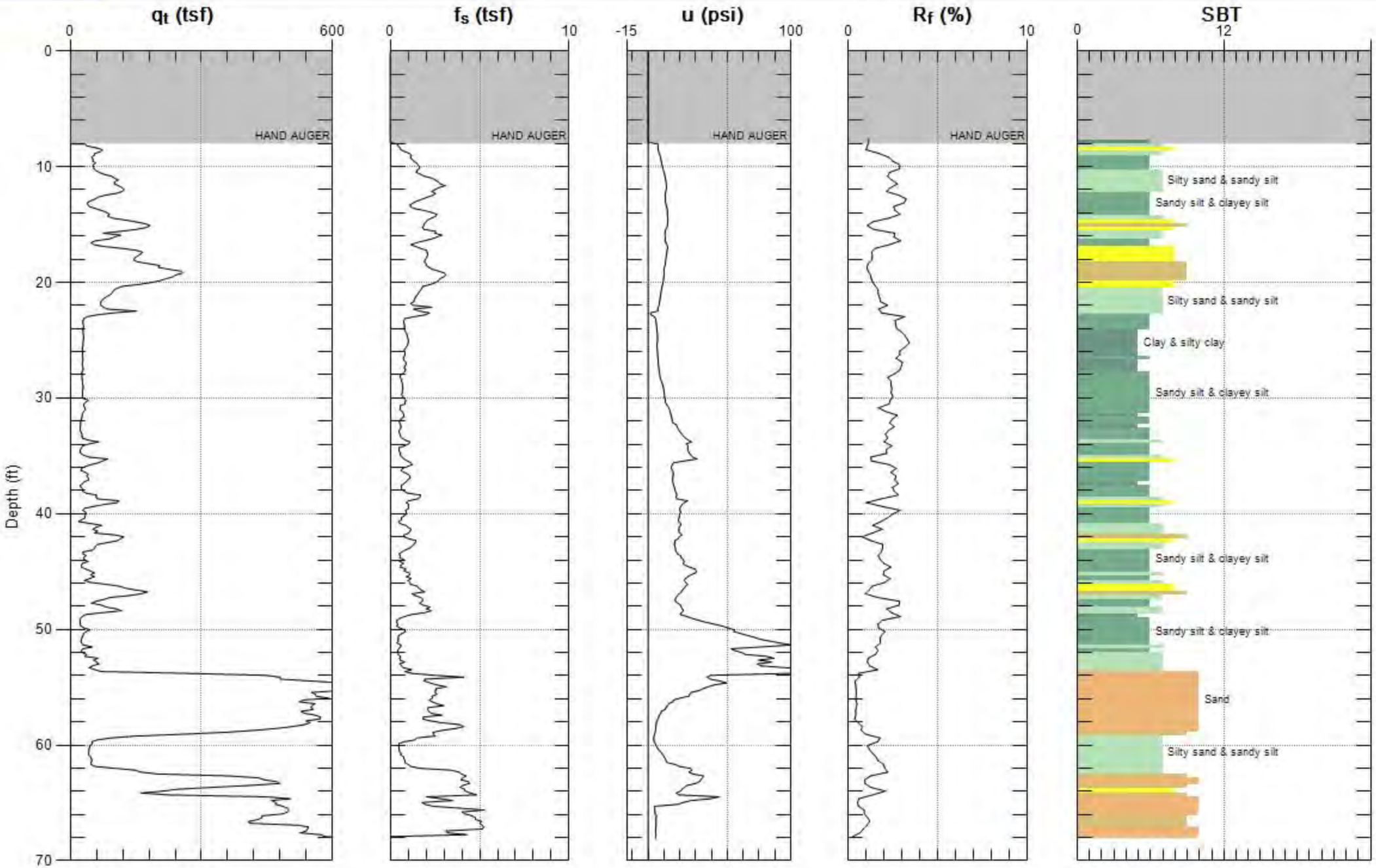
Max. Depth: 68.077 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

GINTER & ASSOC.

Site: UPTOWN NEWPORT
Sounding: CPT 8

Engineer: B.WEATHERBY
Date: 8/19/2011 10:29



Max. Depth: 68.077 (ft)
Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

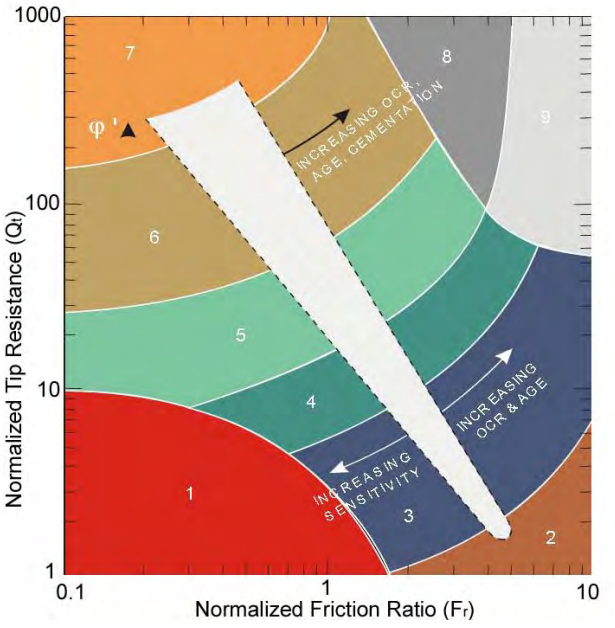
Cone Penetration Test Data & Interpretation

The Cone Penetration Test (CPT) data collected from your site are presented in graphical form in the attached report. The plots include interpreted Soil Behavior Type (SBT) based on the charts described by Robertson (1990). Typical plots display SBT based on the non-normalized charts of Robertson et al (1986). For CPT soundings extending greater than 50 feet, we recommend the use of the normalized charts of Robertson (1990) which can be displayed as SBTn, upon request. The report also includes spreadsheet output of computer calculations of basic interpretation in terms of SBT and SBTn and various geotechnical parameters using current published correlations based on the comprehensive review by Lunne, Robertson and Powell (1997), as well as recent updates by Professor Robertson. The interpretations are presented only as a guide for geotechnical use and should be carefully reviewed. Gregg Drilling & Testing Inc. do not warranty the correctness or the applicability of any of the geotechnical parameters interpreted by the software and do not assume any liability for any use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used in the software.

Some interpretation methods require input of the groundwater level to calculate vertical effective stress. An estimate of the in-situ groundwater level has been made based on the field observations and/or CPT results, but should be verified by the user.

A summary of locations and depths is available in Table 1. Note that all penetration depths referenced in the data are with respect to the existing ground surface.

Note that it is not always possible to clearly identify a soil type based solely on q_t, f_s, and u_2. In these situations, experience, judgment, and an assessment of the pore pressure dissipation data should be used to infer the correct soil behavior type.



(After Robertson, 1990)

Zone	Normailzed Soil Behavior Type
1	sensitive fine grained
2	organic material
3	clay to silty clay
4	clayey silt to silty clay
5	silty sand to sandy silt
6	clean sands to silty sands
7	gravelly sand to sand
8	very stiff sand to clayey sand
9	very stiff fine grained

Figure SBTn

Cone Penetration Test Data & Interpretation

The Cone Penetration Test (CPT) data collected from your site are presented in graphical form in the attached report. The plots include interpreted Soil Behavior Type (SBT) based on the charts described by Robertson (1990). Typical plots display SBT based on the non-normalized charts of Robertson et al (1986). For CPT soundings extending greater than 50 feet, we recommend the use of the normalized charts of Robertson (1990) which can be displayed as SBTn, upon request. The report also includes spreadsheet output of computer calculations of basic interpretation in terms of SBT and SBTn and various geotechnical parameters using current published correlations based on the comprehensive review by Lunne, Robertson and Powell (1997), as well as recent updates by Professor Robertson. The interpretations are presented only as a guide for geotechnical use and should be carefully reviewed. Gregg Drilling & Testing Inc. do not warranty the correctness or the applicability of any of the geotechnical parameters interpreted by the software and do not assume any liability for any use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used in the software.

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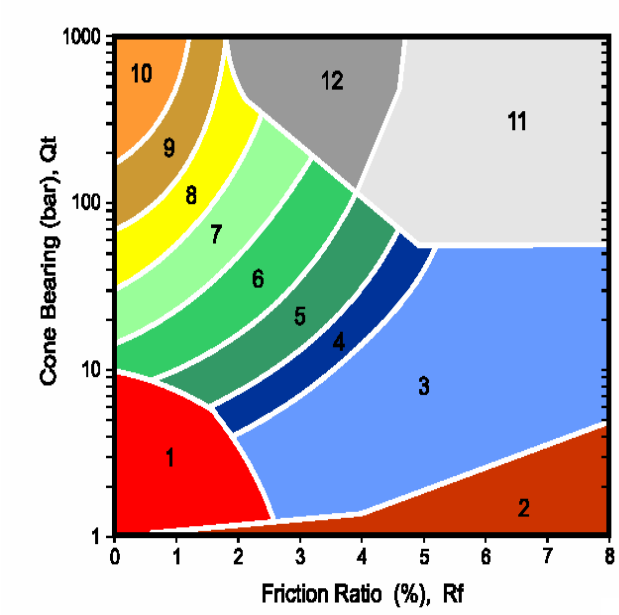
Note that it is not always possible to clearly identify a soil type based solely on q_t, f_s, and u_2. In these situations, experience, judgment, and an assessment of the pore pressure dissipation data should be used to infer the correct soil behavior type.



(After Robertson, et al., 1986)

ZONE		SBT
1		Sensitive, fine grained
2		Organic materials
3		Clay
4		Silty clay to clay
5		Clayey silt to silty clay
6		Sandy silt to clayey silt
7		Silty sand to sandy silt
8		Sand to silty sand
9		Sand
10		Gravely sand to sand
11		Very stiff fine grained*
12		Sand to clayey sand*

*over consolidated or cemented

Figure SBT

Cone Penetration Test (CPT) Interpretation

Gregg has recently updated their CPT interpretation and plotting software (2007). The software takes the CPT data and performs basic interpretation in terms of soil behavior type (SBT) and various geotechnical parameters using current published empirical correlations based on the comprehensive review by Lunne, Robertson and Powell (1997). The interpretation is presented in tabular format using MS Excel. The interpretations are presented only as a guide for geotechnical use and should be carefully reviewed. Gregg does not warranty the correctness or the applicability of any of the geotechnical parameters interpreted by the software and does not assume any liability for any use of the results in any design or review. The user should be fully aware of the techniques and limitations of any method used in the software.

The following provides a summary of the methods used for the interpretation. Many of the empirical correlations to estimate geotechnical parameters have constants that have a range of values depending on soil type, geologic origin and other factors. The software uses 'default' values that have been selected to provide, in general, conservatively low estimates of the various geotechnical parameters.

Input:

1 Units for display (Imperial or metric) (atm. pressure, pa = 0.96 tsf or 0.1 MPa)
2 Depth interval to average results,(ft or m). Data are collected at either 0.02 or 0.05m and can be averaged every 1, 3 or 5 intervals.
3 Elevation of ground surface (ft or m)
4 Depth to water table, z_w (ft or m) – input required
5 Net area ratio for cone, a (default to 0.80)
6 Relative Density constant, C_{Dr} (default to 350)
7 Young's modulus number for sands, α (default to 5)
8 Small strain shear modulus number
  a. for sands, S_G (default to 180 for SBT_n 5, 6, 7)
  b. for clays, C_G (default to 50 for SBT_n 1, 2, 3 & 4)
9 Undrained shear strength cone factor for clays, N_{kt} (default to 15)
10 Over Consolidation ratio number, k_{ocr} (default to 0.3)
11 Unit weight of water, (default to γ_w = 62.4 lb/ft^3 or 9.81 kN/m^3)

Column

1 Depth, z, (m) – CPT data is collected in meters
2 Depth (ft)
3 Cone resistance, q_c (tsf or MPa)
4 Sleeve friction, f_s (tsf or MPa)
5 Penetration pore pressure, u (psi or MPa), measured behind the cone (i.e. u_2)
6 Other – any additional data, if collected, e.g. electrical resistivity or UVIF
7 Total cone resistance, q_t (tsf or MPa) $q_t = q_c + u\,(1\text{-}a)$

8	Friction Ratio, R_f (%)	$R_f = (f_s/q_t)$ x 100%
9	Soil Behavior Type (non-normalized), SBT	see note
10	Unit weight, γ (pcf or kN/m^3)	based on SBT, see note
11	Total overburden stress, σ_v (tsf)	$\sigma_{vo} = \gamma z$
12	Insitu pore pressure, u_o (tsf)	$u_o = \gamma_w (z - z_w)$
13	Effective overburden stress, σ'_{vo} (tsf)	$\sigma'_{vo} = \sigma_{vo} - u_o$
14	Normalized cone resistance, Q_{t1}	$Q_{t1} = (q_t - \sigma_{vo}) / \sigma'_{vo}$
15	Normalized friction ratio, F_r (%)	$F_r = f_s / (q_t - \sigma_{vo})$ x 100%
16	Normalized Pore Pressure ratio, B_q	$B_q = u - u_o / (q_t - \sigma_{vo})$
17	Soil Behavior Type (normalized), SBT_n	see note
18	SBT_n Index, I_c	see note
19	Normalized Cone resistance, Q_{tn} (n varies with Ic)	see note
20	Estimated permeability, k_{SBT} (cm/sec or ft/sec)	see note
21	Equivalent SPT N_{60}, blows/ft	see note
22	Equivalent SPT $(N_1)_{60}$ blows/ft	see note
23	Estimated Relative Density, D_r, (%)	see note
24	Estimated Friction Angle, ϕ', (degrees)	see note
25	Estimated Young's modulus, E_s (tsf)	see note
26	Estimated small strain Shear modulus, Go (tsf)	see note
27	Estimated Undrained shear strength, s_u (tsf)	see note
28	Estimated Undrained strength ratio	s_u/σ_v'
29	Estimated Over Consolidation ratio, OCR	see note

Notes:

1 Soil Behavior Type (non-normalized), SBT Lunne et al. (1997) listed below

2 Unit weight, γ either constant at 119 pcf or based on Non-normalized SBT (Lunne et al., 1997 and table below)

3 Soil Behavior Type (Normalized), SBT_n Lunne et al. (1997)

4 SBT_n Index, I_c $I_c = ((3.47 - \log Q_{t1})^2 + (\log F_r + 1.22)^2)^{0.5}$

5 Normalized Cone resistance, Q_{tn} (n varies with Ic)

$Q_{tn} = ((q_t - \sigma_{vo})/pa)\ (pa/(\sigma'_{vo})^n$ and recalculate I_c, then iterate:

When $I_c < 1.64$, n = 0.5 (clean sand)
When $I_c > 3.30$, n = 1.0 (clays)
When $1.64 < I_c < 3.30$, $n = (I_c - 1.64)0.3 + 0.5$
Iterate until the change in n, $\Delta n < 0.01$

6 Estimated permeability, k_{SBT} (based on Normalized SBT_n)
(Lunne et al., 1997 and table below)

7 Equivalent SPT N_{60}, blows/ft Lunne et al. (1997)

$$\frac{(q_t/p_a)}{N_{60}} = 8.5\left(1 - \frac{I_c}{4.6}\right)$$

8 Equivalent SPT $(N_1)_{60}$ blows/ft $(N_1)_{60} = N_{60}\, C_{N,}$
where $C_N = (pa/\sigma'_{vo})^{0.5}$

9 Relative Density, D_r, (%) $D_r^2 = Q_{tn} / C_{Dr}$
Only SBT_n 5, 6, 7 & 8 *Show 'N/A' in zones 1, 2, 3, 4 & 9*

10 Friction Angle, ϕ', (degrees) $\tan\phi' = \frac{1}{2.68}\left[\log\left(\frac{q_c}{\sigma'_{vo}}\right) + 0.29\right]$
Only SBT_n 5, 6, 7 & 8 *Show'N/A' in zones 1, 2, 3, 4 & 9*

11 Young's modulus, E_s $E_s = \alpha\, q_t$
Only SBT_n 5, 6, 7 & 8 *Show 'N/A' in zones 1, 2, 3, 4 & 9*

12 Small strain shear modulus, Go
a. $G_o = S_G\,(q_t\ \sigma'_{vo}\ pa)^{1/3}$ *For SBT_n 5, 6, 7*
b. $G_o = C_G\, q_t$ *For SBT_n 1, 2, 3& 4*
Show 'N/A' in zones 8 & 9

13 Undrained shear strength, s_u $s_u = (q_t - \sigma_{vo}) / N_{kt}$
Only SBT_n 1, 2, 3, 4 & 9 *Show 'N/A' in zones 5, 6, 7 & 8*

14 Over Consolidation ratio, OCR $OCR = k_{ocr}\, Q_{t1}$
Only SBT_n 1, 2, 3, 4 & 9 *Show 'N/A' in zones 5, 6, 7 & 8*

SBT Zones **SBT_n Zones**

The following updated and simplified SBT descriptions have been used in the software:

1	sensitive fine grained	1	sensitive fine grained
2	organic soil	2	organic soil
3	clay	3	clay
4	clay & silty clay	4	clay & silty clay
5	clay & silty clay		
6	sandy silt & clayey silt		
7	silty sand & sandy silt	5	silty sand & sandy silt
8	sand & silty sand	6	sand & silty sand
9	sand		
10	sand	7	sand

11	very dense/stiff soil*	8	very dense/stiff soil*
12	very dense/stiff soil*	9	very dense/stiff soil*

*heavily overconsolidated and/or cemented

Track when soils fall with zones of same description and print that description (i.e. if soils fall only within SBT zones 4 & 5, print 'clays & silty clays')

Estimated Permeability (see Lunne et al., 1997)

SBT_n	Permeability (ft/sec)	(m/sec)
1	$3x\ 10^{-8}$	$1x\ 10^{-8}$
2	$3x\ 10^{-7}$	$1x\ 10^{-7}$
3	$1x\ 10^{-9}$	$3x\ 10^{-10}$
4	$3x\ 10^{-8}$	$1x\ 10^{-8}$
5	$3x\ 10^{-6}$	$1x\ 10^{-6}$
6	$3x\ 10^{-4}$	$1x\ 10^{-4}$
7	$3x\ 10^{-2}$	$1x\ 10^{-2}$
8	$3x\ 10^{-6}$	$1x\ 10^{-6}$
9	$1x\ 10^{-8}$	$3x\ 10^{-9}$

Estimated Unit Weight (see Lunne et al., 1997)

SBT	Approximate Unit Weight (lb/ft^3)	(kN/m^3)
1	111.4	17.5
2	79.6	12.5
3	111.4	17.5
4	114.6	18.0
5	114.6	18.0
6	114.6	18.0
7	117.8	18.5
8	120.9	19.0
9	124.1	19.5
10	127.3	20.0
11	130.5	20.5
12	120.9	19.0

Pore Pressure Dissipation Tests (PPDT)

Pore Pressure Dissipation Tests (PPDT's) conducted at various intervals measured hydrostatic water pressures and determined the approximate depth of the ground water table. A PPDT is conducted when the cone is halted at specific intervals determined by the field representative. The variation of the penetration pore pressure (u) with time is measured behind the tip of the cone and recorded by a computer system.
Pore pressure dissipation data can be interpreted to provide estimates of:

- Equilibrium piezometric pressure
- Phreatic Surface
- In situ horizontal coefficient of consolidation (c_h)
- In situ horizontal coefficient of permeability (k_h)

In order to correctly interpret the equilibrium piezometric pressure and/or the phreatic surface, the pore pressure must be monitored until such time as there is no variation in pore pressure with time, *Figure PPDT*. This time is commonly referred to as t_{100}, the point at which 100% of the excess pore pressure has dissipated.

A complete reference on pore pressure dissipation tests is presented by Robertson et al. 1992.

A summary of the pore pressure dissipation tests is summarized in Table 1.

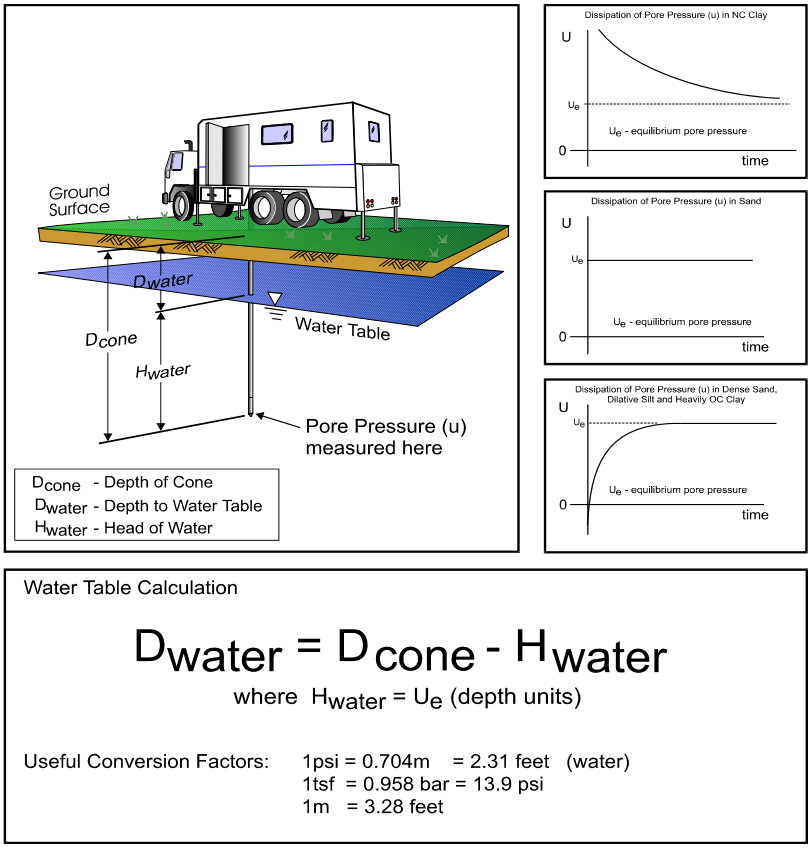


Figure PPDT

Dakota Technologies
UVOST Log Reference

2008-12-12

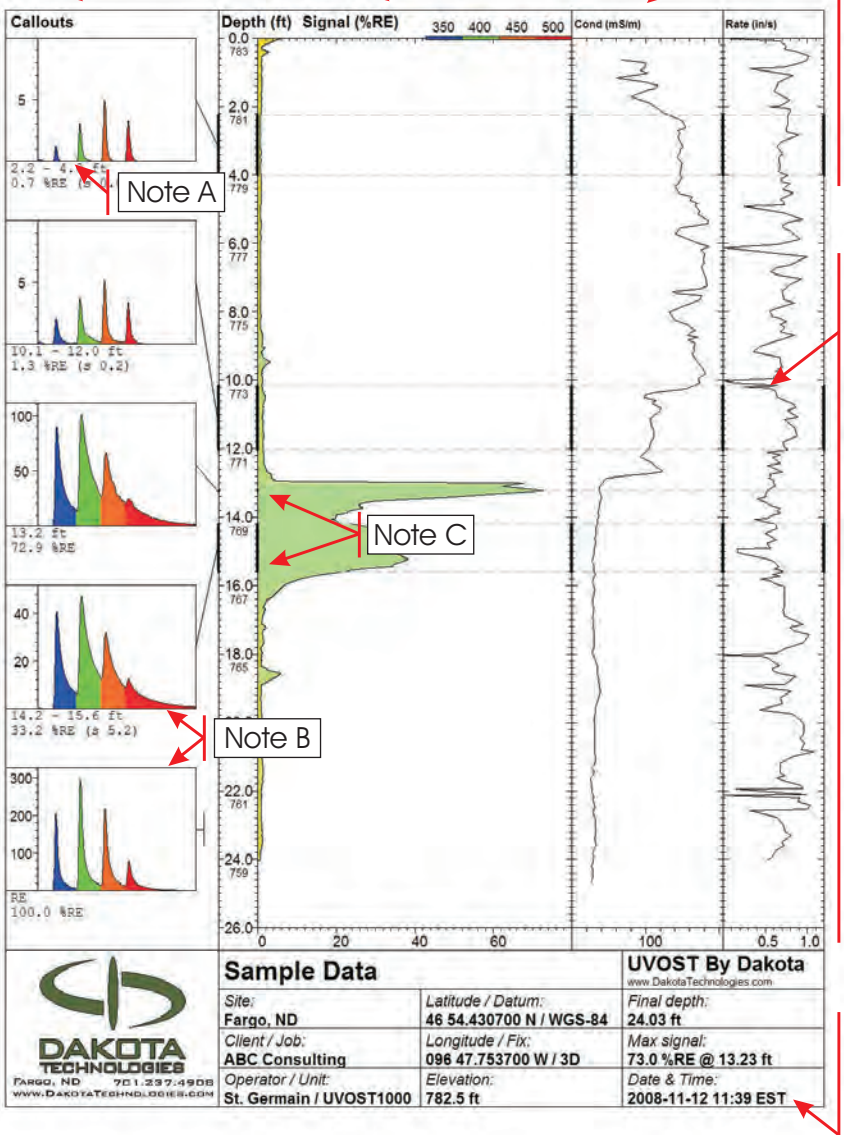
Main Plot :
Signal (total fluorescence) versus depth where signal is relative to the Reference Emitter (RE). The total area of the waveform is divided by the total area of the Reference Emitter yielding the %RE. This %RE scales with the NAPL fluorescence. The fill color is based on relative contribution of each channel's area to the total waveform area (see callout waveform). The channel-to-color relationship and corresponding wavelengths are given in the upper right corner of the main plot.

Callouts :
Waveforms from selected depths or depth ranges showing the multi-wavelength waveform for that depth.

The four peaks are due to fluorescence at four wavelengths and referred to as “channels”. Each channel is assigned a color.

Various NAPLs will have a unique waveform "fingerprint" due to the relative amplitude of the four channels and/or broadening of one or more channels.

Basic waveform statistics and any operator notes are given below the callout.



Conductivity Plot :
The Electrical Conductivity (EC) of the soil can be logged simultaneously with the UVOST data. EC often provides insight into the stratigraphy.
Note the drop in EC from 10 - 13 ft, indicating a shift from consolidated to unconsolidated stratigraphy. This correlates with the observed NAPL distribution.

Rate Plot :
The rate of probe advancement. ~ 0.8in (2cm) per second is preferred.

A noticeable decrease in the rate of advancement may be indicative of difficult probing conditions (gravel, angular sands, etc.) such as that seen here at ~5 ft.

Notice that this log was terminated arbitrarily, not due to "refusal", which would have been indicated by a sudden rate drop at final depth.

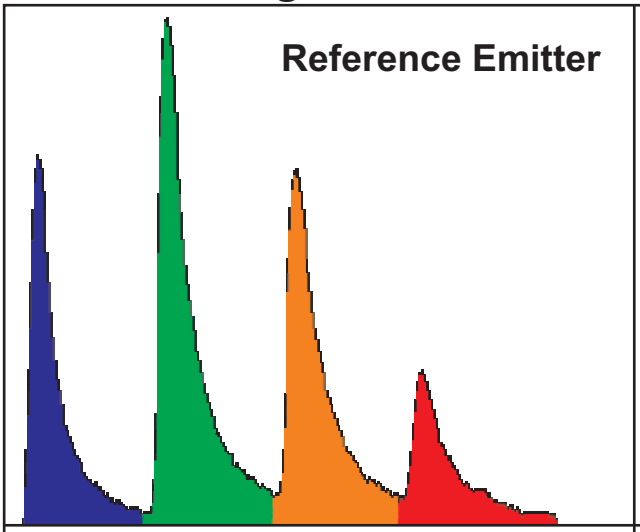
Info Box :
Contains pertinent log info including name and location.

Note A :
Time is along the x axis. No scale is given, but it is a consistent 320ns wide.
The y axis is in mV and directly corresponds to the amount of light striking the photodetector.

Note B :
These two waveforms are clearly different. The first is weathered diesel from the log itself while the second is the Reference Emitter (a blend of NAPLs) always taken before each log for calibration.

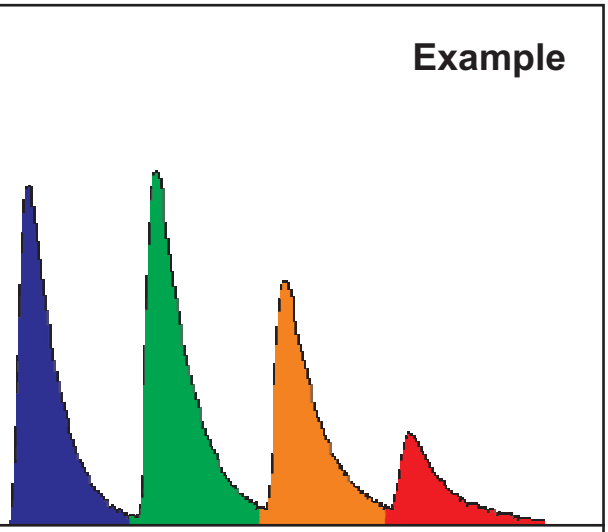
Note C :
Callouts can be a single depth (see 3rd callout) or a range (see 4th callout). The range is noted on the depth axis by a bold line. When the callout is a range, the average and standard deviation in %RE is given below the callout.

Waveform Signal Calculation



CH1		CH2		CH3		CH4		Total
4820	+	8108	+	6249	+	2984	=	**22161**
21.7		36.6		28.2		13.5		**100%**

Channel Area (pVs) Percent RE

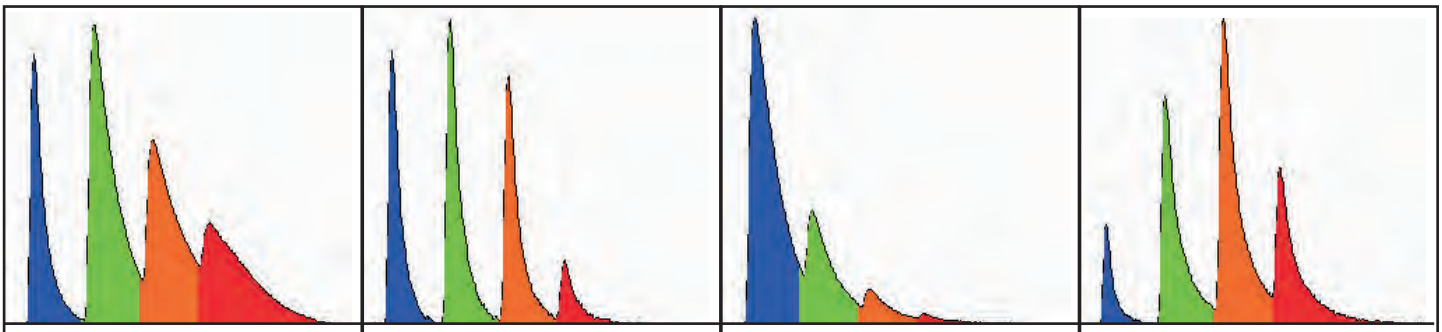


CH1		CH2		CH3		CH4		Total
4923	+	5743	+	4166	+	1735	=	**16587**
22.3		25.9		18.8		7.8		**75%**

Data Files

***.lif.raw.bin**	Raw data file. Header is ASCII format and contains information stored when the file was initially written (e.g. date, total depth, max signal, gps, etc., and any information entered by the operator). All raw waveforms are appended to the bottom of the file in a binary format.
***.lif.plt**	Stores the plot scheme history (e.g. callout depths) for associated Raw file. Transfer along with the Raw file in order to recall previous plots.
***.lif.jpg**	A jpg image of the OST log including the main signal vs. depth plot, callouts, information, etc.
***.lif.dat.txt**	Data export of a single Raw file. ASCII tab delimited format. No string header is provided for the columns (to make importing into other programs easier). Each row is a unique depth reading. The columns are: Depth, Total Signal (%RE), Ch1%, Ch2%, Ch3%, Ch4%, Rate, Conductivity Depth, Conductivity Signal, Hammer Rate. Summing channels 1 to 4 yields the Total Signal.
***.lif.sum.txt**	A summary file for a number of Raw files. ASCII tab delimited format. The file contains a string header. The summary includes one row for each Raw file and contains information for each file including: the file name, gps coordinates, max depth, max signal, and depth at which the max signal occured.
***.lif.log.txt**	An activity log generated automatically located in the OST application directory in the 'log' subfolder. Each OST unit the computer operates will generate a separate log file per month. A log file contains much of the header information contained within each separate Raw file, including: date, total depth, max signal, etc.

Common Waveforms (highly dependent on soil, weathering, etc.)



Diesel	Gas	Kerosene	Motor Oil

Laser Induced Fluorescence (UVOST)

Gregg Drilling conducts Laser Induced Fluorescence (LIF) Cone Penetration Tests using a UVOST module that is located behind the standard piezocone, *Figure UVOST*. The laser induced fluorescence cone works on the principle that polycyclic aromatic hydrocarbons (PAH's), mixed with soil and/or groundwater, fluoresce when irradiated by ultra violet light. Therefore, by measuring the intensity of fluorescence, the lateral and vertical extent of hydrocarbon contamination in the ground can be determined.

The UVOST module uses principles of fluorescence spectrometry by irradiating the soil with ultra violet light produced by a laser and transmitted to the cone through fiber optic cables. The light is then passes through a small window in the side of the cone into the soil. Any hydrocarbon molecules present in the soil absorb the light energy during radiation and immediately re-emit the light at a longer wavelength. This re-emission is termed fluorescence. The UVOST system also measures the emission decay with time at four different wavelengths (350nm, 400nm, 450nm, and 500nm). This allows the software to determine a product "signature" at each data point. This process allows determination of the type of contaminant as shown in Figure *Concept*.

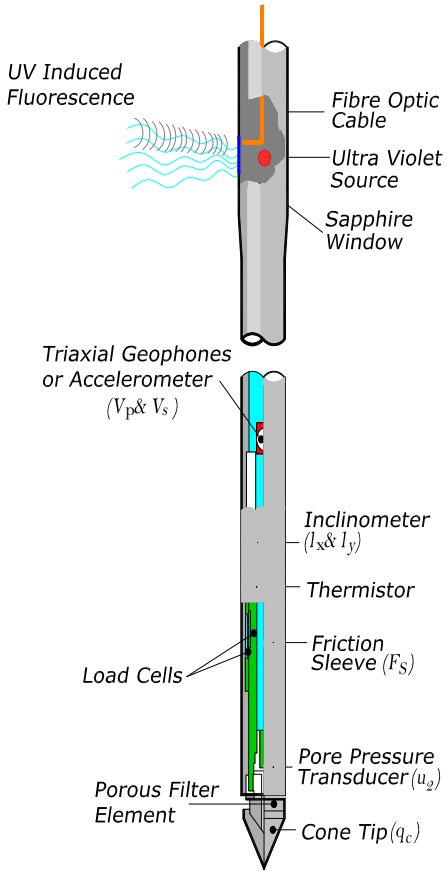


Figure UVOST: UVOST system deployed with the CPT

In general, the typical detection limit for the UVOST system is <100 ppm and it will operate effectively above and below the saturated zone. With the capability to push up to 600 feet per day, laser induced fluorescence offers a fast and efficient means for delineating PAH contaminant plumes. Color coded logs offer qualitative information in a quick glance and can be produced in the field for real-time decision making. Coupled with the data provided by the CPT, a complete site assessment can be completed with no samples or cuttings, saving laboratory costs as well as site and environmental impact.

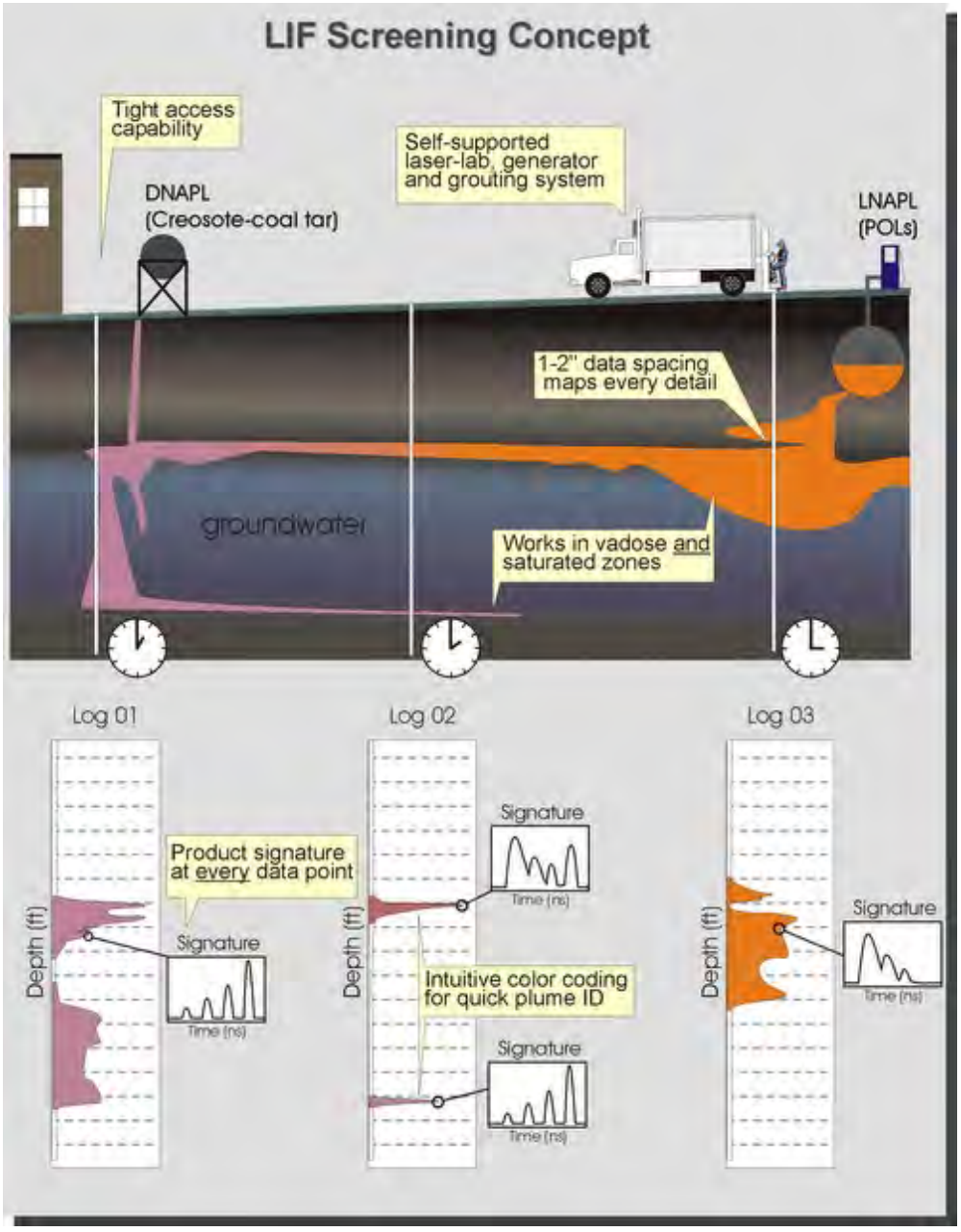
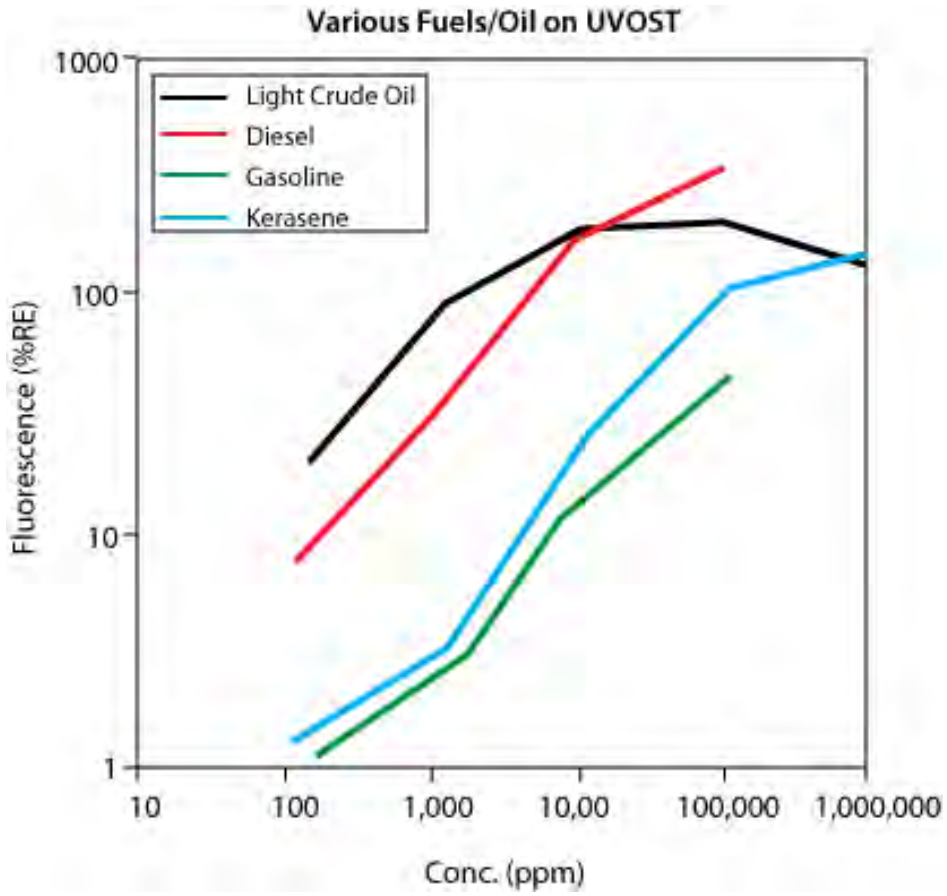


Figure Concept (figure provided by Dakota Technologies)

Hydrocarbons detected with UVOST	Hydrocarbons rarely detected using UVOST
Gasoline	Extremely weathered gasoline
Diesel	Coal tar
Jet (Kerosene)	Creosote
Motor Oil	Bunker Oil
Cutting fluids	Polychlorinated bi-phenols (PCB's)
Hydraulic fluids	Chlorinated solvent DNAPL
Crude Oil	Dissolved phase (aqueous) PAH's

Potential False Positives (fluorescence observed)	**Potential False Negatives** (do not fluoresce)
Sea-shells (weak-medium)	Extremely weathered fuels (especially gasoline)
Paper (medium-strong depending on color)	Aviation gasoline (weak)
Peat/meadow mat (weak)	Coal tars (most)
Calcite/calcareous sands (weak)	Creosotes (most)
Tree roots (weak-medium)	"Dry" PAHs such as aqueous phase, lamp black, purifier chips
Sewer lines (medium-strong)	Most chlorinated solvents
	Benzene, toluene, zylenes (relatively pure)



APPENDIX IV

LABORATORY TESTING

ASSIGNED BY GINTER & ASSOCIATES, INC.

Engineering Geology and Geotechnical Engineering

9428 Eton Avenue, Unit M, Chatsworth, California 91311
Tel: (818) 341-1899 Fax: (818) 341-1897 Email: cygeotech@sbcglobal.net

September 29, 2011 P. N. CYG-11-6216

LABORATORY TESTING SERVICES

As requested by Mr. Vela Ganeshwara of Gantec Engineering, Inc. (GEI), C. Y. Geotech (CYG) , Inc. has performed the laboratory tests as listed in Table 1 for GEI project PT 116-02, at Lots 1& 2, Tract 7953, Newport Beach, California. The testing procedures of ASTM (American Society for Testing and Materials) Standards were followed in the laboratory tests. The CYG laboratory is certified by the City of Los Angeles Department of Building and Safety.

Client Name:	Gantec Engineering, Inc.
Project Name:	GEI/Upper Newport Village
GEI Project No:	PT 116-02
Project Address:	Lots 1& 2, Tract 7953, Newport Beach, California

The type and quantity of laboratory tests are listed in Table 1. The results of laboratory tests are summarized in Table 2, Plates DS-1 to DS-11, Plates CS-1 to CS-21, Plates CM-1 to CM-3, and Plates GS-1 to GS-15. If you have any questions regarding the laboratory testing, please do not hesitate to call us.

Very truly yours,
C. Y. Geotech, Inc.

John T. Tsao
RCE 46886

TEST PROCEDURES

Moisture-Density Test

Onsite soils were classified in the field and laboratory in accordance with the USCS (Unified Soil Classification System) classification system. Moisture contents are determined in general accordance with ASTM Test Designation D2216-10. Unit weights were determined in general accordance with ASTM Test Designation D2937-10. The results of moisture-density tests are listed in Table 2.

Direct Shear Test

Eleven direct shear tests were performed on selected ring samples to determine the shear strength parameters of onsite soil. The direct shear test was performed in accordance with ASTM Standard D-3080-04 by using a strain control type direct shear machine and under an artificially saturated condition. The samples were submerged into water for one or two days to saturate the samples prior to testing. The samples were tested under the following procedures: 1) the sample is placed in the shear box and then a selected normal stress is applied to the specimen, 2) the sample is compressed by the normal stress until an equilibrium state is reached, 3) the sample is sheared under a constant rate of shear displacement of 0.004 inches per minute, 4) the peak value of shear strength during shearing was recorded as the peak shear strength, 5) back-shear the sample to the original position and then reshear the sample to record the peak value as the ultimate shear strength. Three samples were tested with different normal loads following the abovementioned testing procedures. The results were plotted on a normal-stress vs. shearing strength diagram to determine the shear strength parameters: cohesion and angle of internal friction. The results of direct shear tests are presented in Plates DS-1 to DS-11.

Consolidation Test

Twenty one consolidation tests were performed on selected ring samples to determine the compressibility and hydroconsolidation potential of onsite soil. The consolidation test was performed in general accordance with ASTM Standard D-2435-11. The ring sample was contained in a 2.4-inch-diameter and 1.0-inch-high sampling ring. This test was performed primarily on materials which would be most susceptible to consolidation under anticipated foundation loading. The sample was tested under the following procedures: 1) the sample is placed in a loading frame under a seating pressure of 200 psf, 2) apply vertical loads to the sample in several geometric increments and record the resulting deformations at selected time intervals, 3) adds water to the test cell and records the vertical consolidation when the applied stress reaches a simulated foundation pressure (often 2000 psf) and the sample has consolidated under that pressure, 4) repeat step 2 until a loading pressure of 4000 psf or 8000 psf and record the equilibrium consolidation, 5) unload the sample to an applied stress of 1000 psf and record the rebound of the sample. The results of these tests are presented in terms of percent volume change versus applied vertical stress. The results of consolidation tests are presented in Plates CS-1 to CS-21.

Compaction Test

Three compaction tests were performed on bulk soil samples to determine the maximum dry density and optimum moisture content of onsite soil. The compaction tests were performed in general accordance with ASTM Test Designation D1557-09. The procedure A of compaction test was used in the subject project. The following materials and criteria were followed in test: 1) soil sample passing No.4 sieve was used in test, 2) a 4-inch mode was used in test, 3) a 10-pound hammer with a free fall distance of 18 inches was used in

test, 4) five layers of soil sample were compacted in the 4-inch mode, 5) the blow for each layer of soil sample is 25. A minimum of three soil samples were performed to determine the corresponding dry density and moisture content. The results of the tests are presented in terms of moisture content verses dry density to generate a compaction curve. The maximum dry density and optimum moisture content can be determined from the compaction curve. The results of the compaction tests are presented in Plates CM-1 to CM-3.

Expansion Index Test

Three expansion index tests were performed on bulk soil samples to determine the expansion potential of the soil. The expansion index tests were performed in general accordance with expansion test procedures in ASTM D4829-08a to provide an assessment of the potential for expansion or heave that could be detrimental to foundation or slab performance. The following procedures were followed in the test: 1) compact the soil sample at degree of saturation between 48 and 52 percent in a 4.01-inch-diameter, 1.0-inch-high ring, 2) apply a vertical seating pressure of 144 psf to the sample, 3) add water to the test cell and saturate the soil sample, 4) record the soil expansion until the expansion of soil sample stops. The volume of swell is converted to an expansion index. Laboratory expansion index tests indicated an expansion indexes of 74, 114 and 105 for the tested native soil. A soil with an expansion index in the range of 51 to 90 is classified as medium expansive soil. A soil with an expansion index in the range of 91 to 130 is classified as high expansive soil.

Grain Size Distribution Test

Fifteen mechanical sieve tests and nine hydrometer tests were performed on selected soil samples to determine their grain size distributions in accordance with ASTM Standard D-422-63 (2007). Mechanical sieve analyses establish gradation for the coarse-grained particles (i.e., sand and gravel). Hydrometer tests establish gradation for the fine-grained particles (i.e., silt and clay). The results of gradation analyses are presented in Plates GS-1 through GS-15.

Table 1. Type and Quantity of Laboratory Test

Laboratory Test	Quantity	ASTM Standard
Density and Moisture Content	111	D-2216
Direct Shear Test	11	D-3080
Consolidation Test	21	D-2435
Compaction Test	3	D-1557
Expansion Index Test	3	D-4829
Grain Size Distribution Test	15	D-422

Table 2. Results of the Dry Density-Moisture Content Test

Location	Depth ft	Soils Description	Dry Density, pcf	Moisture Content, %
GB-1	5	Tan clayey sandy silt	99	23

GB-1	7.5	Light gray silty sand	101	11
GB-1	10	Grayish brown silty sand	110	12
GB-1	20	Yellowish tan sand	106	8
GB-1	30	Olive gray silty clay	86	36
GB-1	40	Dark gray clay	90	31
GB-1	50	Dark gray clayey sand	107	19
GB-1	60	Dark bluish gray clayey sand	113	10
GB-1	70	Reddish brown sand	99	7
GB-2	5	Brown clayey sandy silt	105	18
GB-2	7.5	Olive brown clayey sandy silt	107	19
GB-2	10	Reddish brown silty sand	99	21
GB-2	25	Olive gray sandy clay	108	19
GB-2	35	Olive brown silty clay	92	31
GB-2	45	Dark bluish gray clay	102	22
GB-3	5	Reddish brown clayey silty sand	109	10
GB-3	7.5	Grayish brown sand	99	3
GB-3	10	Light brown silty sandy clay	103	20
GB-3	20	Yellowish brown silty sand	105	14
GB-3	30	Yellowish brown sand	103	20
GB-3	40	Bluish gray silty clay	94	28
GB-3	50	Dark bluish gray silty clayey sand	101	23
GB-3	60	Dark gray silty clay	105	22
GB-3	70	Light gray sand	109	11
GB-4	5	Yellowish brown silty clay	97	22
GB-4	7.5	Olive brown silty clay	90	19
GB-4	10	Olive gray clayey silt	109	15
GB-4	20	Light grayish tan sand	106	2

GB-4	30	Olive gray silty clay	91	32
GB-4	40	Dark bluish gray silty clay	87	34
GB-4	50	Gray silty sand	110	17
GB-5	5	Brown clayey silty sand	94	22
GB-5	10	Grayish brown sand	103	15
GB-5	20	Reddish brown sand	101	7
GB-5	30	Olive brown silty clay	89	33
GB-5	40	Olive brown silty clay	83	42
GB-5	50	Olive brown clayey sand	102	19
GB-6	5	Brown clayey sandy silt	104	15
GB-6	7.5	Brown sand	101	2
GB-6	10	Brown silty sand	96	5
GB-6	20	Brown silty clay	102	19
GB-6	30	Yellowish tan sand	99	25
GB-6	50	Reddish brown sand	92	6
GB-7	7.5	Reddish brown clayey silty sand	120	8
GB-7	10	Reddish brown silty clay	98	18
GB-7	20	Greenish gray clay	96	23
GB-7	30	Reddish brown silty sand	99	6
GB-7	40	Reddish brown clayey silty sand	104	21
GB-7	50	Dark bluish gray clay	106	21
GB-7	60	Dark gray clay	91	29
GB-7	70	Olive gray silty clay	75	41
GB-8	5	Dark brown sandy silty clay	102	22
GB-8	7.5	Dark brown clayey silty sand	113	16
GB-8	10	Reddish brown clayey silty sand	113	13
GB-8	20	Reddish brown sandy clayey silt	105	15

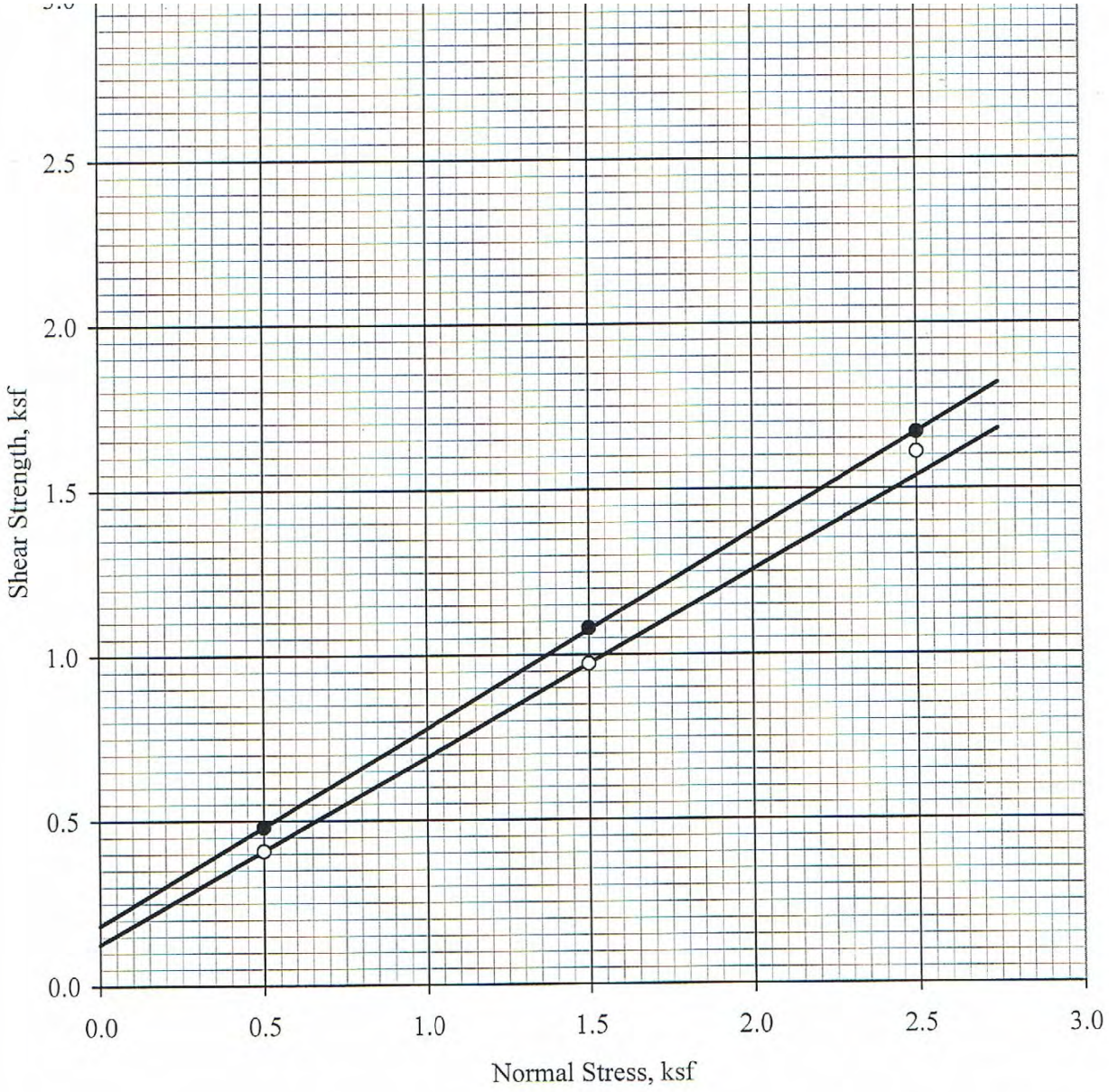
GB-8	40	Olive gray silty clay	92	30
GB-8	50	Gray sand	113	16
GB-9	5	Grayish brown silty clayey sand	104	17
GB-9	7.5	Olive brown silty clay	107	19
GB-9	10	Dark brown silty clayey sand	109	11
GB-9	20	Light gray silty clay	96	20
GB-9	30	Light gray sand	116	11
GB-9	40	Dark gray clay	86	37
GB-9	50	Dark gray clayey sand	110	20
GB-9	60	Light gray silty sandy clay	104	22
GB-9	70	Light gray sand	100	22
GB-10	5	Reddish brown clayey sand	93	6
GB-10	7.5	Brown sand	104	2
GB-10	10	Tan sand	108	1
GB-10	20	Reddish brown clayey sand	105	13
GB-10	30	Reddish brown clayey sand	106	19
GB-10	40	Olive brown clayey sand	107	20
GB-10	50	Greenish gray silty clay	101	23
GB-11	10	Reddish brown clayey sand	109	14
GB-11	20	Reddish brown sand	118	9
GB-11	30	Dark gray clayey sand	80	20
GB-11	40	Medium gray sand	120	13
GB-11	50	Dark gray sandy clay	104	21
GB-11	60	Yellowish tan sand	107	3
GB-11	70	Yellowish tan sand	104	2
GB-12	10	Reddish brown silty clay	104	18
GB-12	20	Reddish brown silty sand	92	13

GB-12	40	Bluish gray clay	83	37
GB-12	50	Dark gray silty clay	86	37
GB-12	60	Bluish gray clayey sand	106	22
GB-12	70	Light gray clayey sand	129	2
GB-13	10	Yellow tan sand	91	12
GB-13	20	Olive brown silty clay	103	21
GB-13	30	Bluish gray silty clay	85	36
GB-13	40	Dark gray silty clay	85	35
GB-13	50	Dark gray clayey sand	116	13
GB-14	5	Reddish brown gravelly sand	116	5
GB-14	7.5	Olive brown clayey silty sand	97	23
GB-14	10	Olive brown clayey silty sand	100	23
GB-14	20	Light grayish tan sand	94	11
GB-14	30	Greenish gray silty clay	88	33
GB-14	40	Dark gray clay	84	36
GB-14	50	Light grayish tan sand	101	7
GB-14	60	Light gray sand	105	15
GB-15	5	Reddish brown clayey silty sand	105	19
GB-15	7.5	Yellowish brown silty sand	111	10
GB-15	10	Brown clayey silty sand	100	24
GB-15	15	Olive brown clayey silt	91	28
GB-15	25	Brownish yellow sand	106	12
GB-15	35	Bluish gray clay	84	34
GB-15	45	Bluish gray sandy clay	102	24
GB-16	10	Yellowish brown sand	99	8
GB-16	20	Olive brown sandy clay	106	20
GB-16	30	Olive brown clay	89	32

GB-16	40	Olive brown clay	87	32
GB-16	50	Olive brown clayey sand	119	9

Table 3. Result of Compaction Tests and Expansion Index Tests

Location	Depth ft	Soil Description	Maximum Dry Density, pcf	Optimum Moisture Content, %	Expansion Index
GB-2	3	Reddish brown sandy silty clay	122	10	74
GB-4	4.5	Brown silty clay	114.5	13.5	114
GB-5	3	Brown silty clay	114.5	13	105



● Peak - At Saturation Moisture Content C = 180 psf ϕ = 30.5 °

○ Ultimate - At Saturation Moisture Content C = 120 psf ϕ = 29 °

Field Dry Density = 101 pcf
Field Moisture Content = 11 %
Saturation Moisture Content = 24 %

Boring: GB-1
Depth : 7.5 feet
Description : Light gray silty sand

C. Y. GEOTECH, INC.

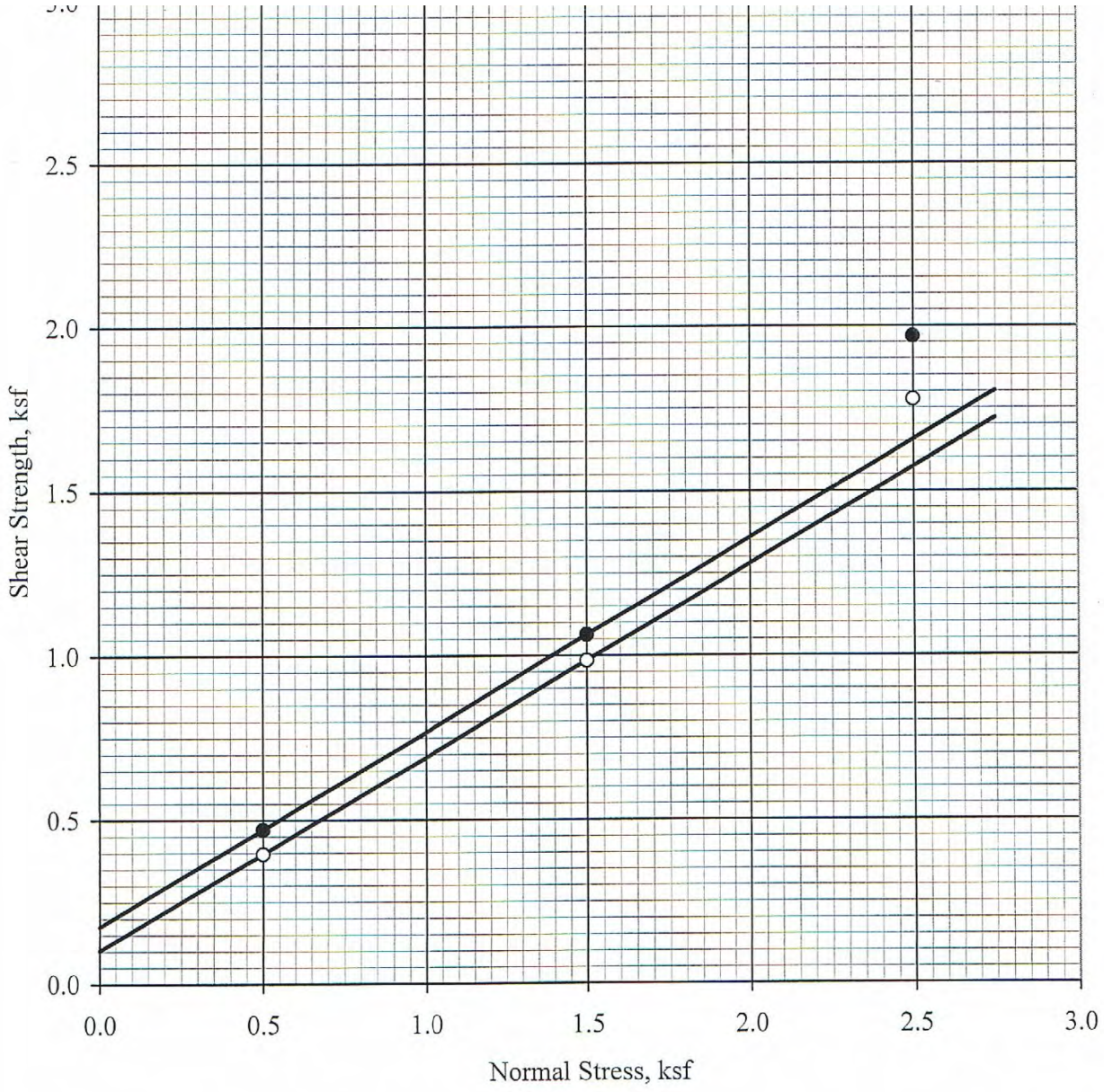
Geotechnical Engineering
and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011 | P.N. No.: CYG-11-6216

Shear Diagram

Plate DS - 1



● Peak - At Saturation Moisture Content C = 170 psf ϕ = 30.5 °

○ Ultimate - At Saturation Moisture Content C = 100 psf ϕ = 30 °

Field Dry Density = 99 pcf
Field Moisture Content = 21 %
Saturation Moisture Content = 25 %

Boring: GB-2
Depth : 10 feet
Description : Reddish brown silty sand

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Geotechnical Engineering
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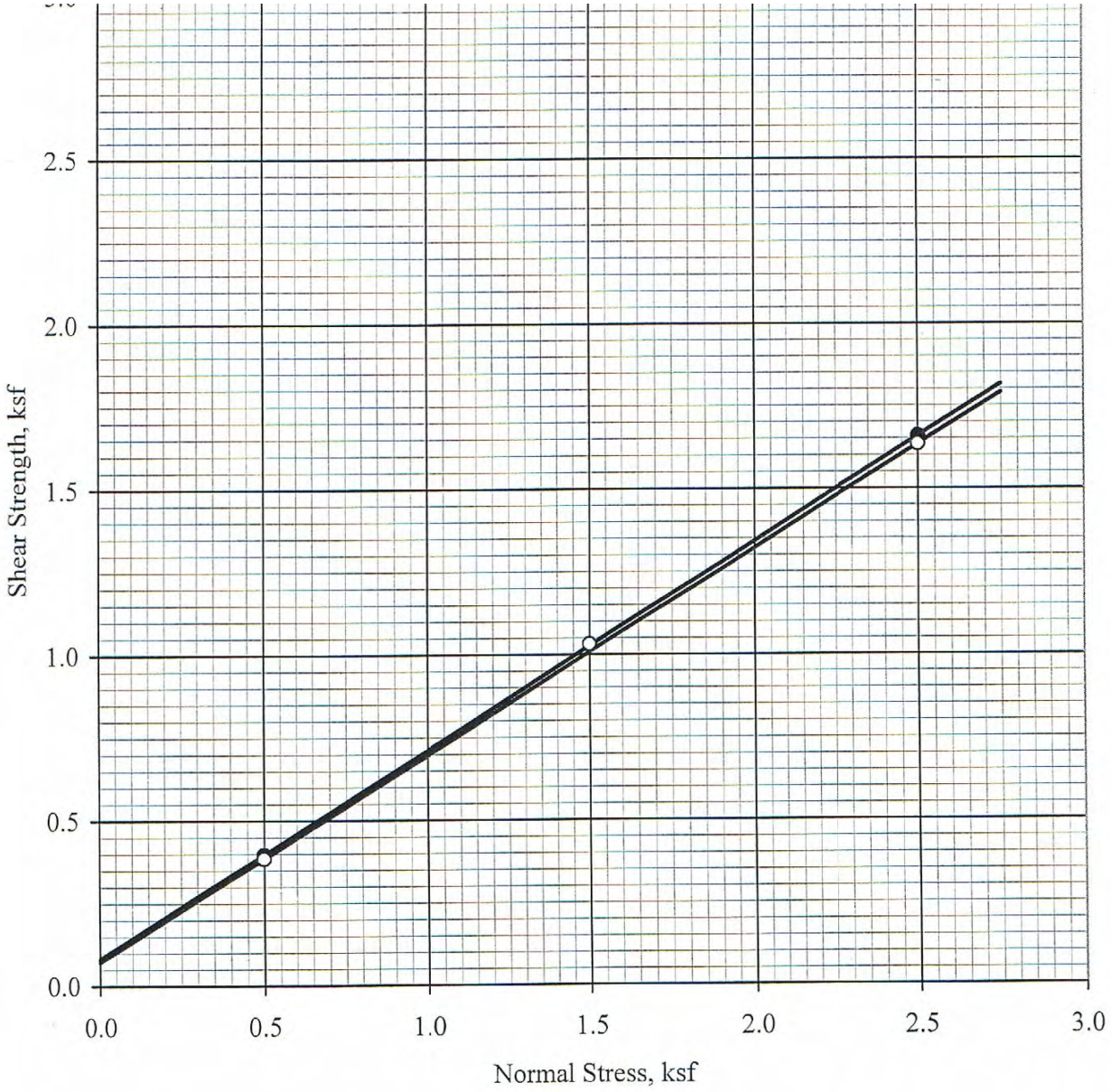
GEI / Upper Newport Village

Date : 10-2011 | P.N. No.: CYG-11-6216

Shear Diagram

Plate DS - 2



● Peak - At Saturation Moisture Content C = 80 psf ϕ = 32 °

○ Ultimate - At Saturation Moisture Content C = 70 psf ϕ = 31.5 °

Field Dry Density = 99 pcf
Field Moisture Content = 3 %
Saturation Moisture Content = 25 %

Boring: GB-3
Depth : 7.5 feet
Description : Grayish brown sand

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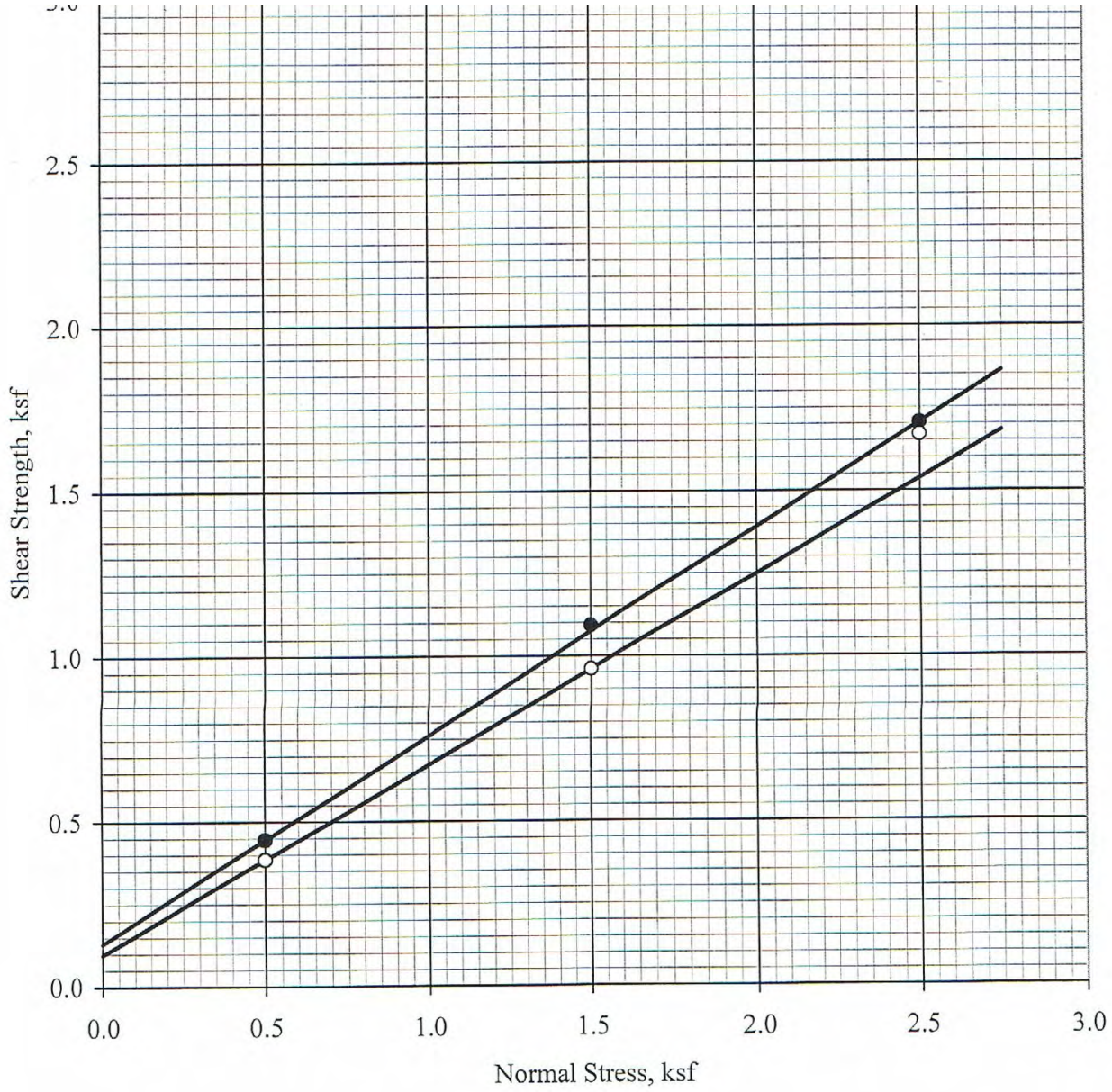
GEI / Upper Newport Village

Date : 09-2011 | P.N. No.: CYG-11-6216

Shear Diagram

Plate DS - 3



● Peak - At Saturation Moisture Content C = 120 psf ϕ = 32 °

○ Ultimate - At Saturation Moisture Content C = 90 psf ϕ = 29.5 °

Field Dry Density = 103 pcf
Field Moisture Content = 15 %
Saturation Moisture Content = 23 %

Boring: GB-5
Depth : 10 feet
Description : Grayish brown sand

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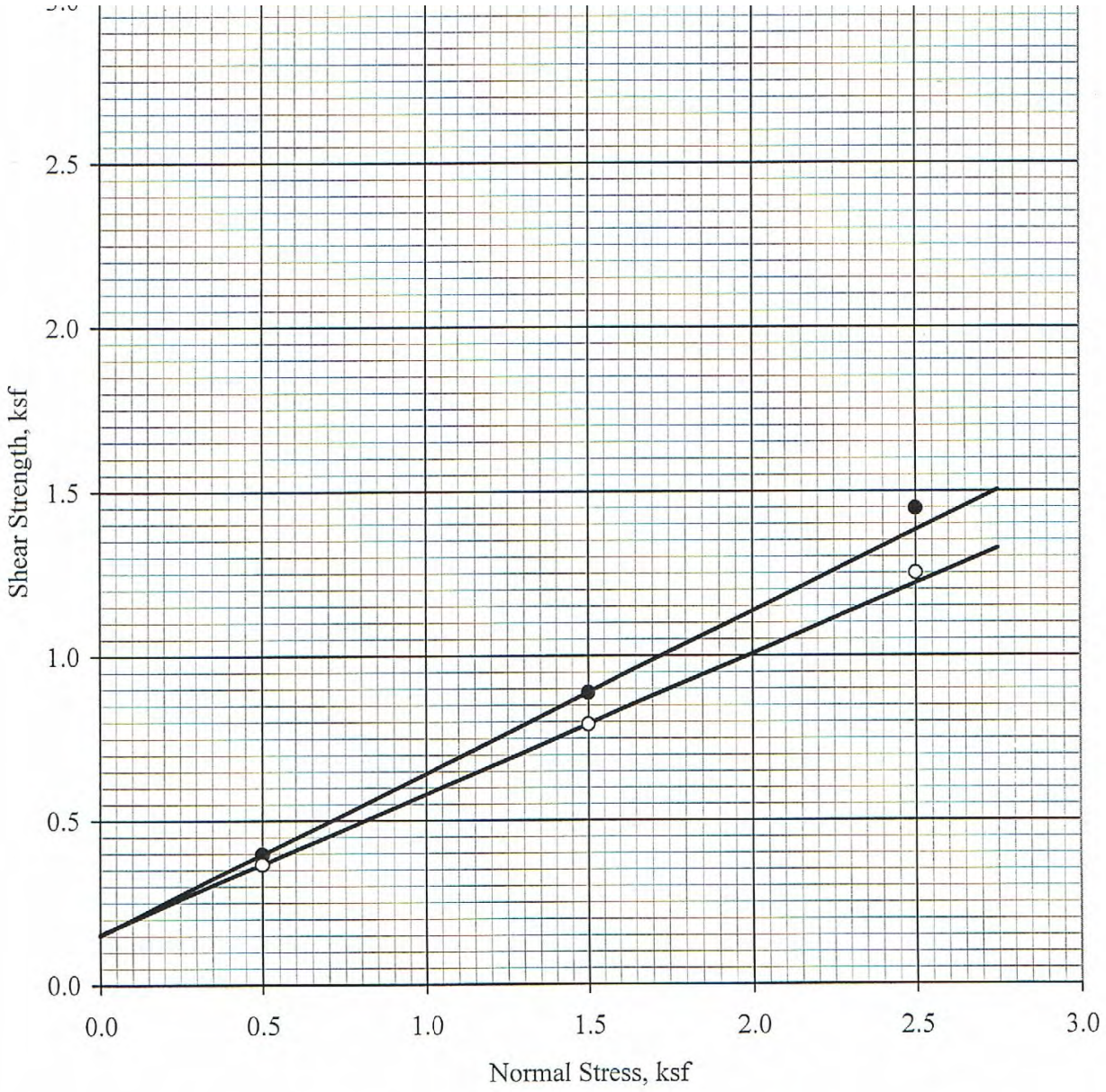
Date : 09-2011 | P.N. No.: CYG-11-6216

Shear Diagram

Plate DS - 4



● Peak - At Saturation Moisture Content C = 150 psf ϕ = 26 °

○ Ultimate - At Saturation Moisture Content C = 150 psf ϕ = 23 °

Field Dry Density = 102 pcf
Field Moisture Content = 19 %
Saturation Moisture Content = 24 %

Boring: GB-6
Depth : 20 feet
Description : Brown silty clay

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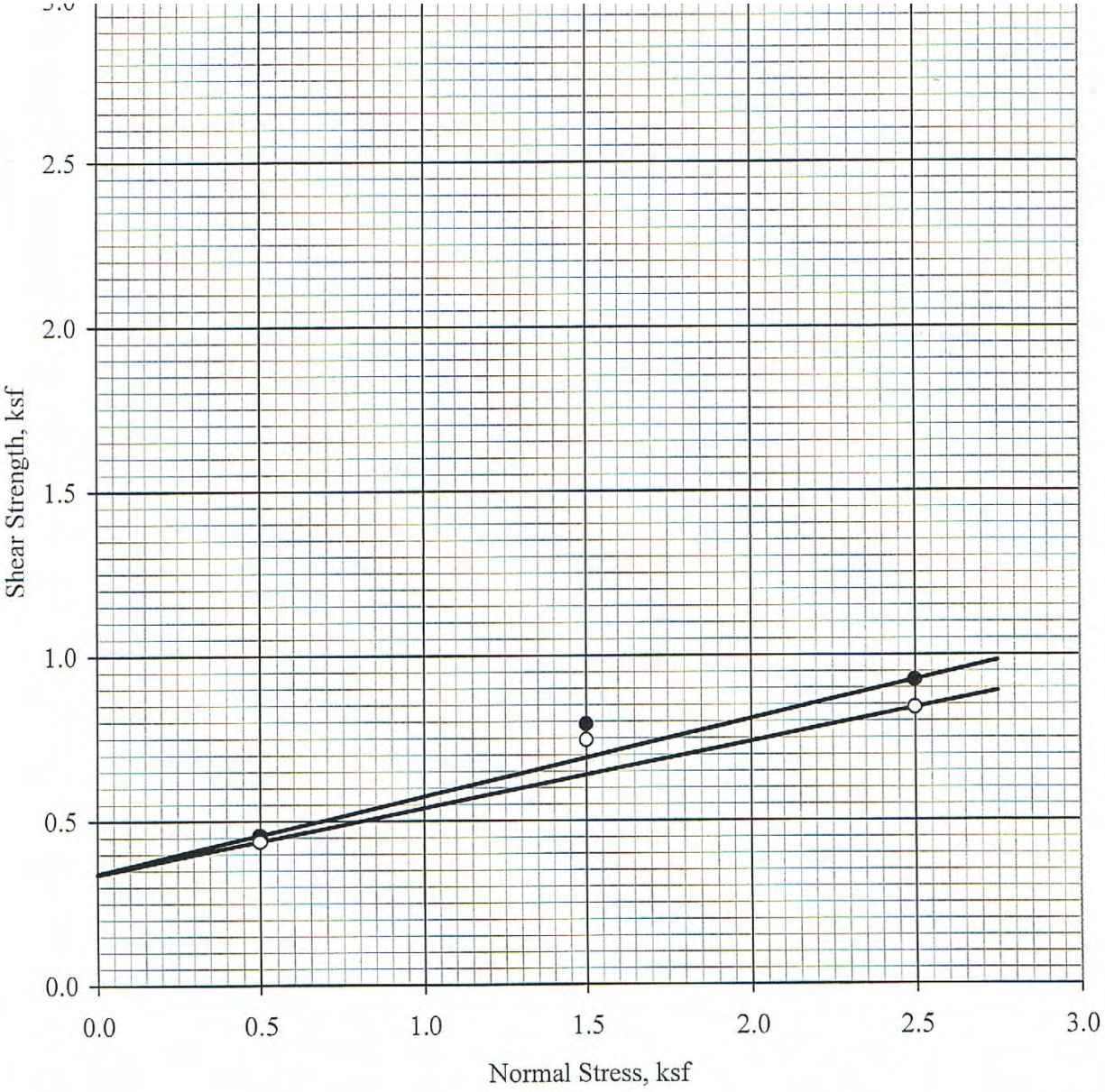
Date : 10-2011 | P.N. No.: CYG-11-6216

Shear Diagram

Plate DS - 5



● Peak - At Saturation Moisture Content C = 330 psf ϕ = 13 °

○ Ultimate - At Saturation Moisture Content C = 330 psf ϕ = 11 °

Field Dry Density = 96 pcf
Field Moisture Content = 23 %
Saturation Moisture Content = 27 %

Boring: GB-7
Depth : 20 feet
Description : Greenish gray clay

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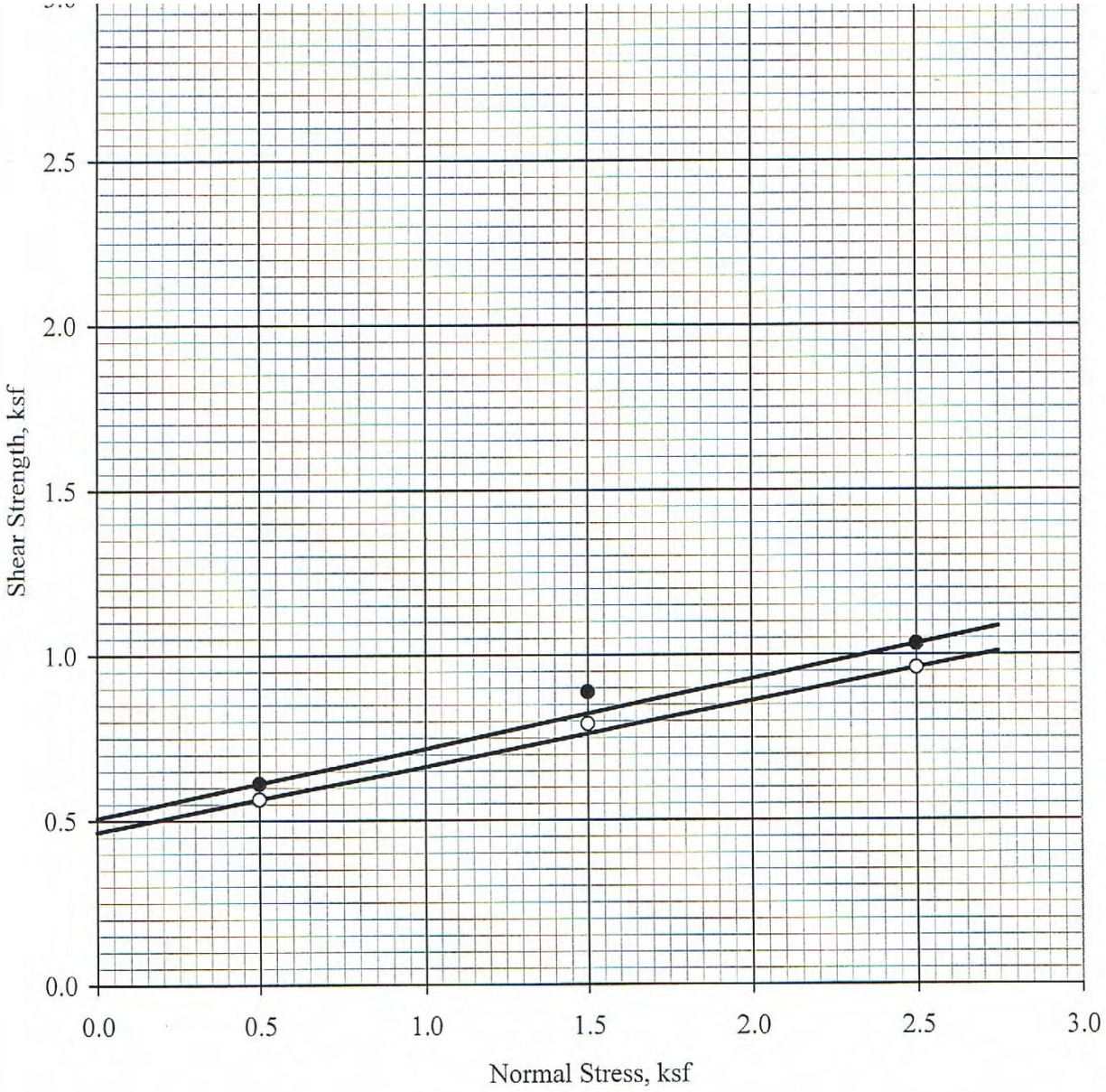
Date : 10-2011 | P.N. No.: CYG-11-6216

Shear Diagram

Plate DS - 6



● Peak - At Saturation Moisture Content C = 500 psf ϕ = 11.5 °

○ Ultimate - At Saturation Moisture Content C = 460 psf ϕ = 11 °

Field Dry Density = 102 pcf
Field Moisture Content = 22 %
Saturation Moisture Content = 24 %

Boring: GB-8
Depth : 5 feet
Description : Dark brown sandy silty clay

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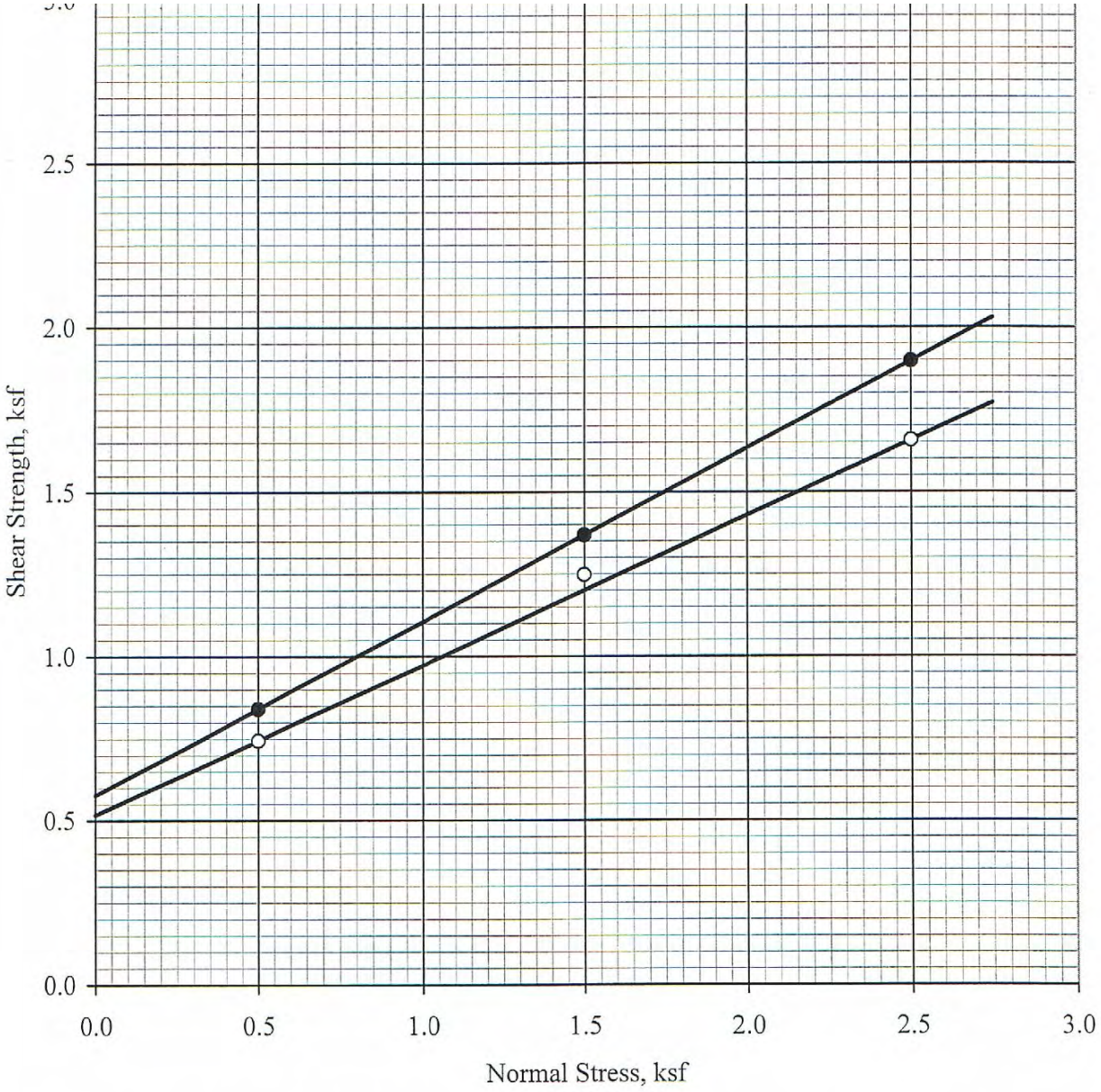
Shear Diagram

Plate DS - 7



● Peak - At Saturation Moisture Content C = 570 psf ϕ = 27.5 °

○ Ultimate - At Saturation Moisture Content C = 510 psf ϕ = 24.5 °

Field Dry Density = 107 pcf
Field Moisture Content = 19 %
Saturation Moisture Content = 21 %

Boring: GB-9
Depth : 7.5 feet
Description : Olive brown silty clay

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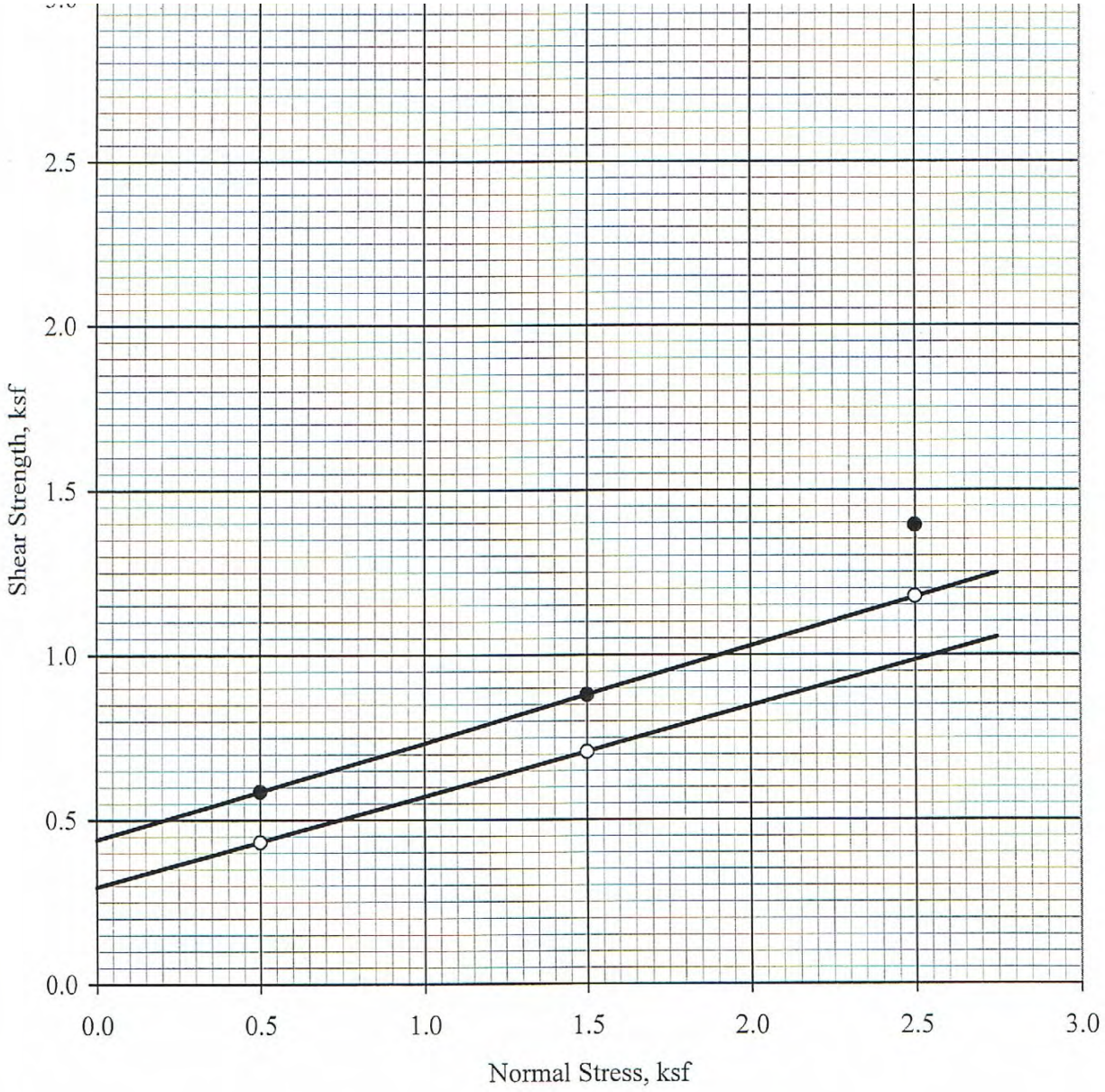
Shear Diagram

Plate DS - 8



● Peak - At Saturation Moisture Content C = 430 psf ϕ = 16 °

○ Ultimate - At Saturation Moisture Content C = 290 psf ϕ = 15 °

Field Dry Density = 104 pcf
Field Moisture Content = 18 %
Saturation Moisture Content = 23 %

Boring: GB-12
Depth : 10 feet
Description : Reddish brown silty clay

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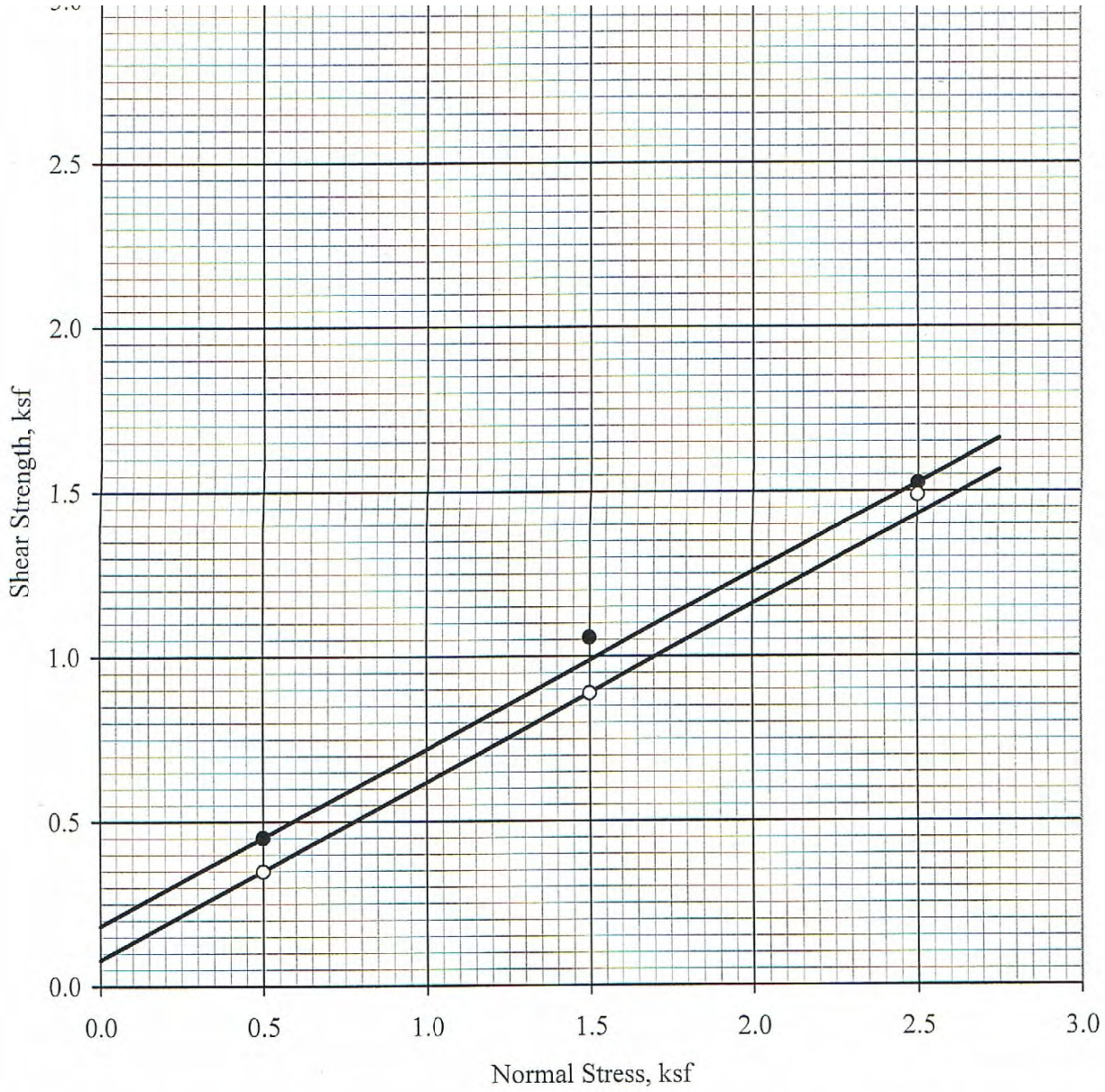
Date : 10-2011 | P.N. No.: CYG-11-6216

Shear Diagram

Plate DS - 9



● Peak - At Saturation Moisture Content C = 180 psf ϕ = 28 °

○ Ultimate - At Saturation Moisture Content C = 70 psf ϕ = 28 °

Field Dry Density = 100 pcf
Field Moisture Content = 23 %
Saturation Moisture Content = 25 %

Boring: GB-14
Depth : 10 feet
Description : Olive brown clayey silty sand

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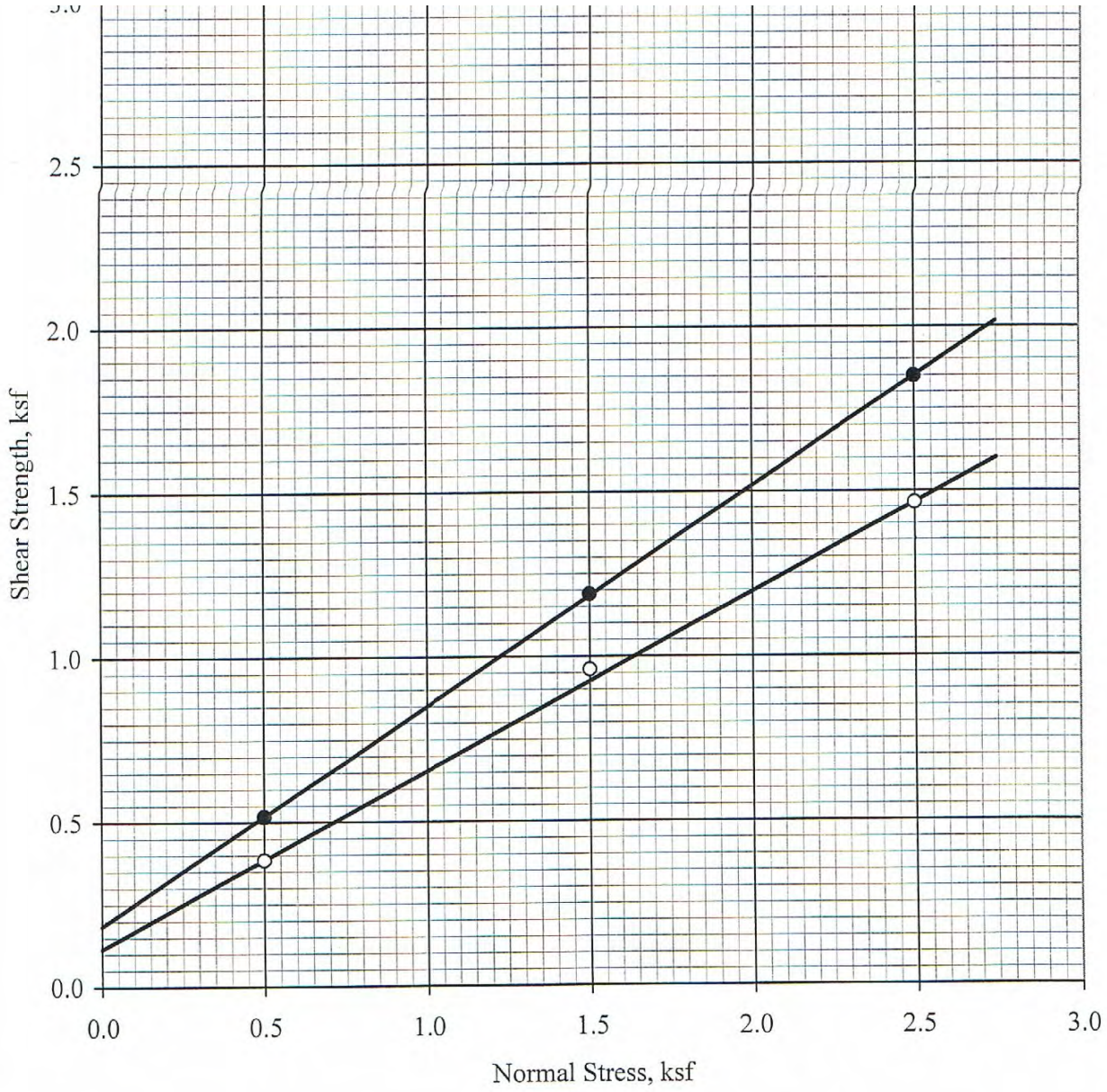
GEI / Upper Newport Village

Date : 10-2011 | P.N. No.: CYG-11-6216

Shear Diagram

Plate DS - 10



● Peak - At Saturation Moisture Content C = 180 psf ϕ = 33.5 °

○ Ultimate - At Saturation Moisture Content C = 110 psf ϕ = 28 °

Field Dry Density = 111 pcf
Field Moisture Content = 10 %
Saturation Moisture Content = 19 %

Boring: GB-15
Depth : 7.5 feet
Description : Yellowish brown silty sand

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Shear Diagram

Plate DS - 11

C. Y. GEOTECH, INC.

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Date : 10-2011 | P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	After	Height (inches)	Diameter (inches)
GB-1	5	23	25	1.0	2.4

Classification : Tan clayey sandy silt

Hydroconsolidation = 0.2 %

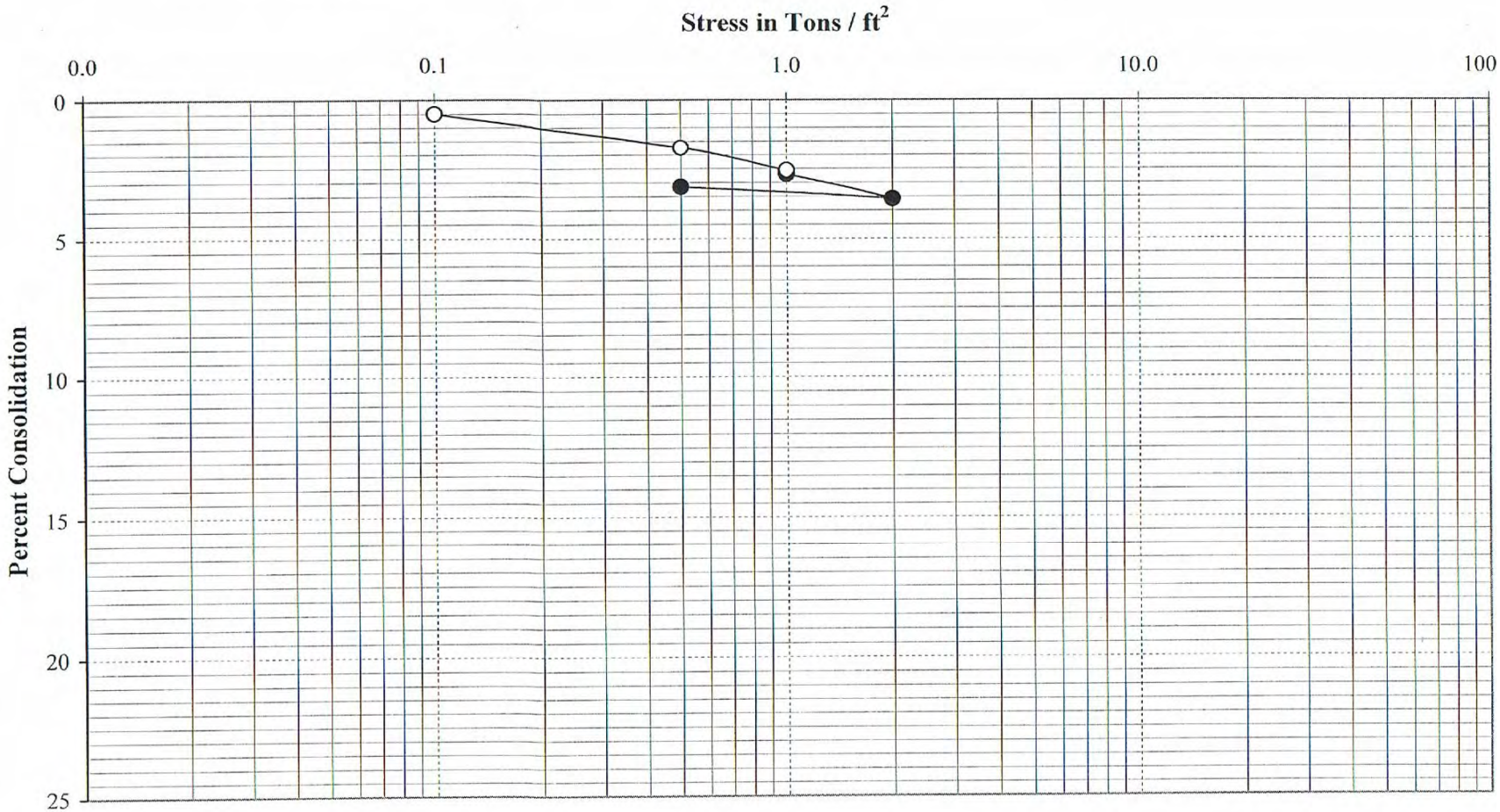

Plate CS - 1

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011 | P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	After	Height (inches)	Diameter (inches)
GB-2	7.5	19	21	1.0	2.4

Classification : Olive brown clayey sandy silt

Swelling = 1.8 %

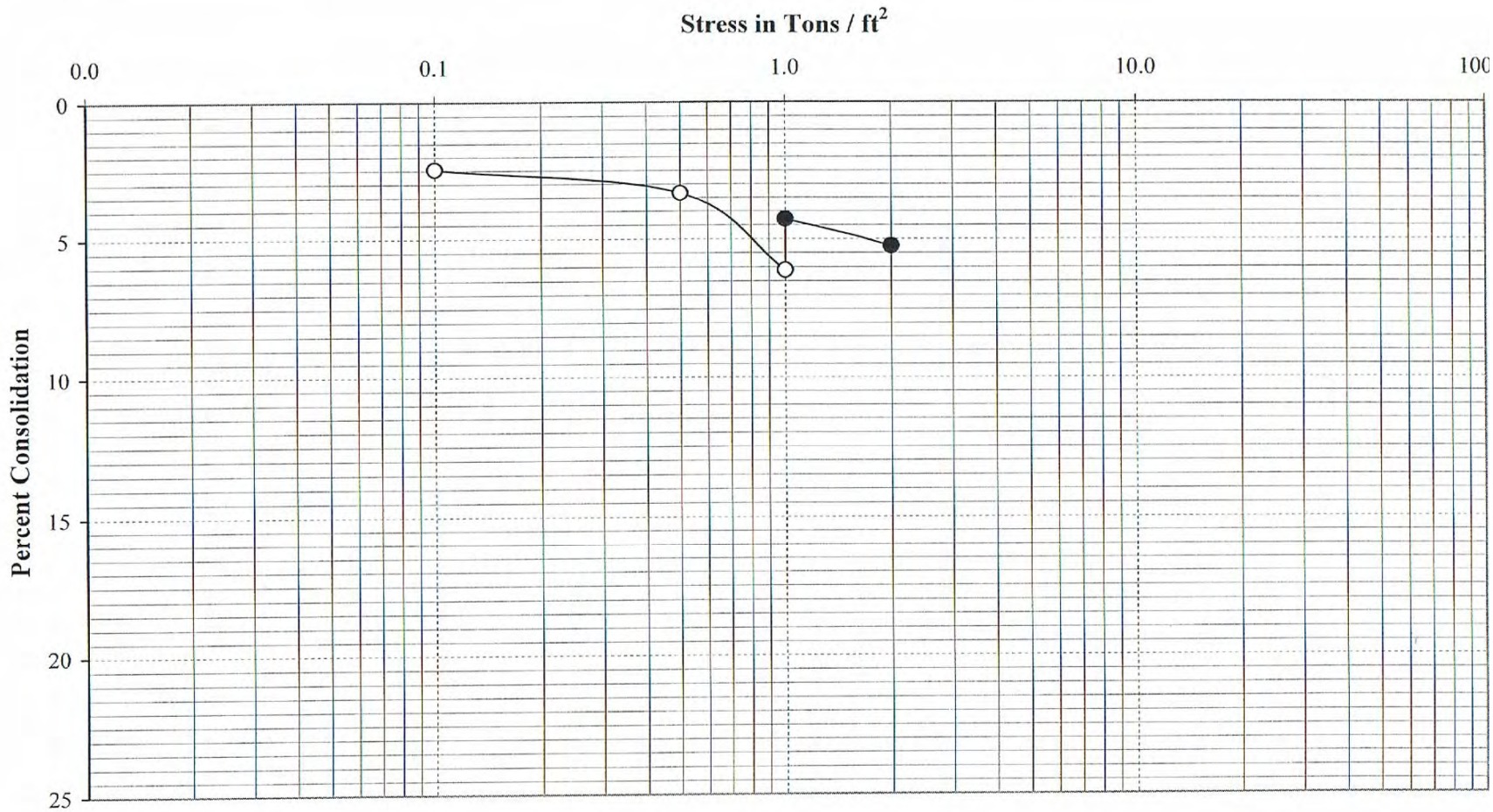

Plate CS - 2

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011 | P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	After	Height (inches)	Diameter (inches)
GB-3	5	10	20	1.0	2.4

Classification : Reddish brown clayey silty sand

Swelling = 1.3 %

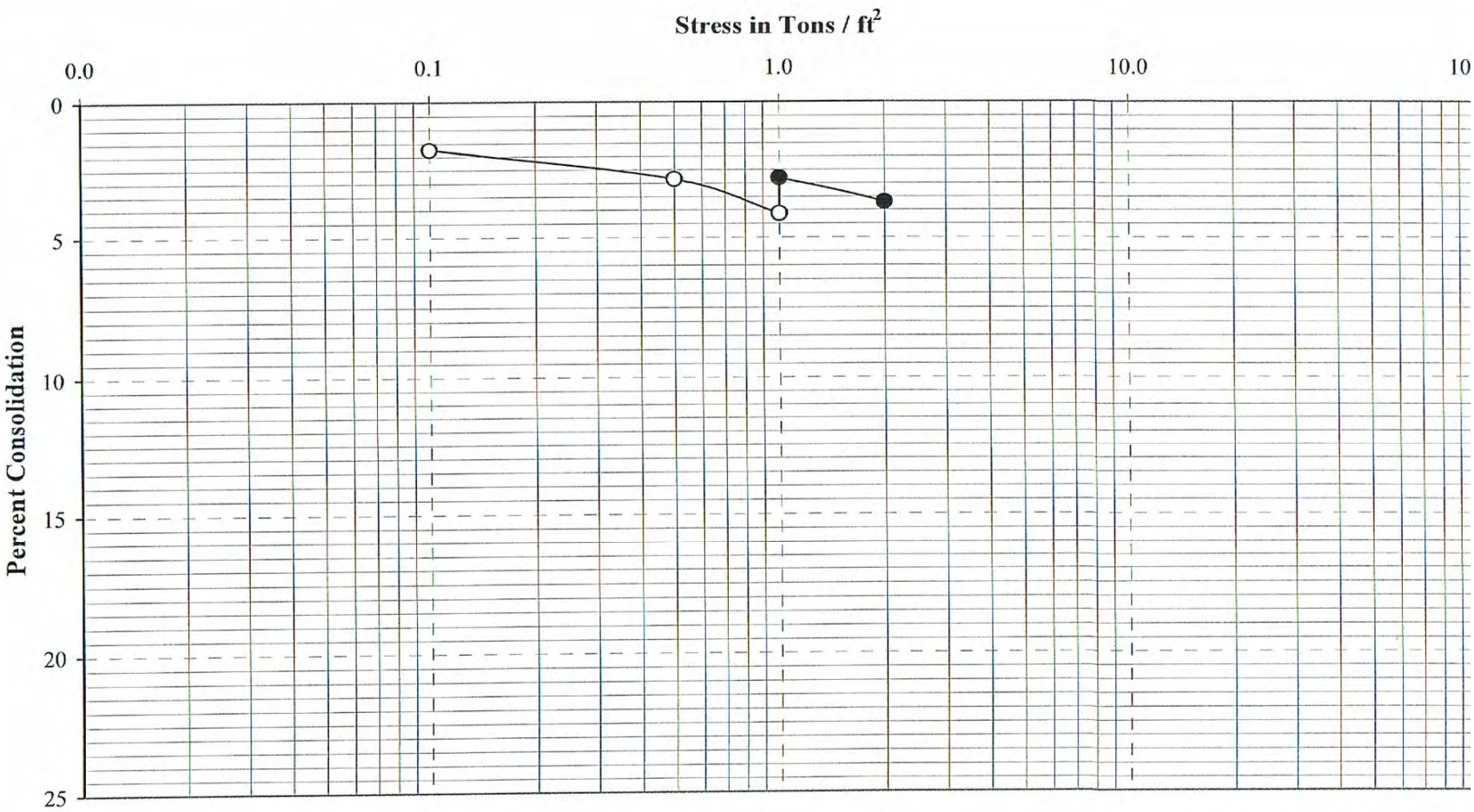

Plate CS - 3

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011

P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	After	Height (inches)	Diameter (inches)
GB-3	10	20	23	1.0	2.4

Classification : Light brown silty sandy clay

Swelling = 0.2 %

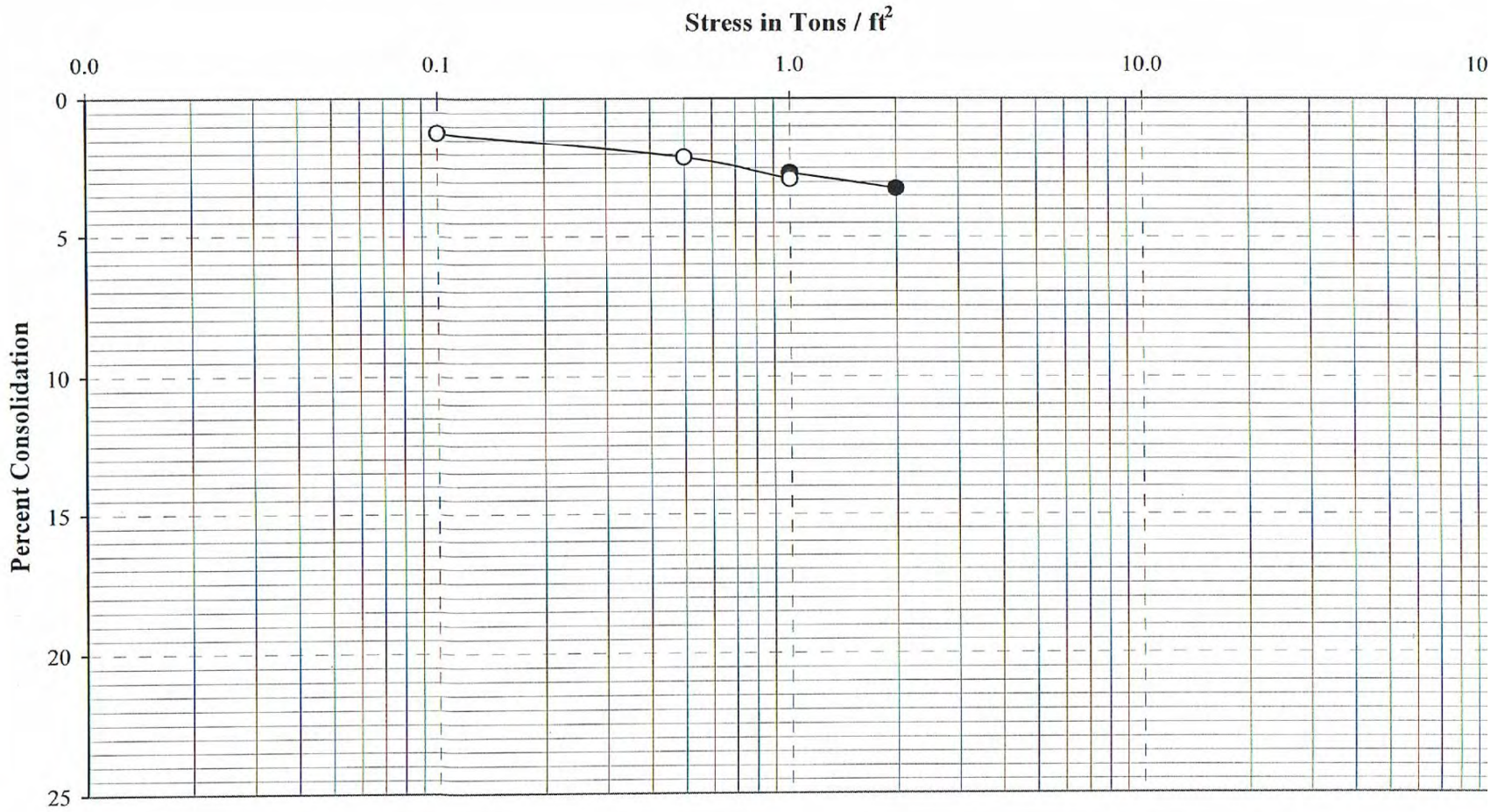

Plate CS - 4

C. Y. GEOTECH, INC.

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Date : 09-2011 | P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	After	Height (inches)	Diameter (inches)
GB-4	20	2	21	1.0	2.4

Classification : Light grayish tan sand

Hydroconsolidation = 0.4 %

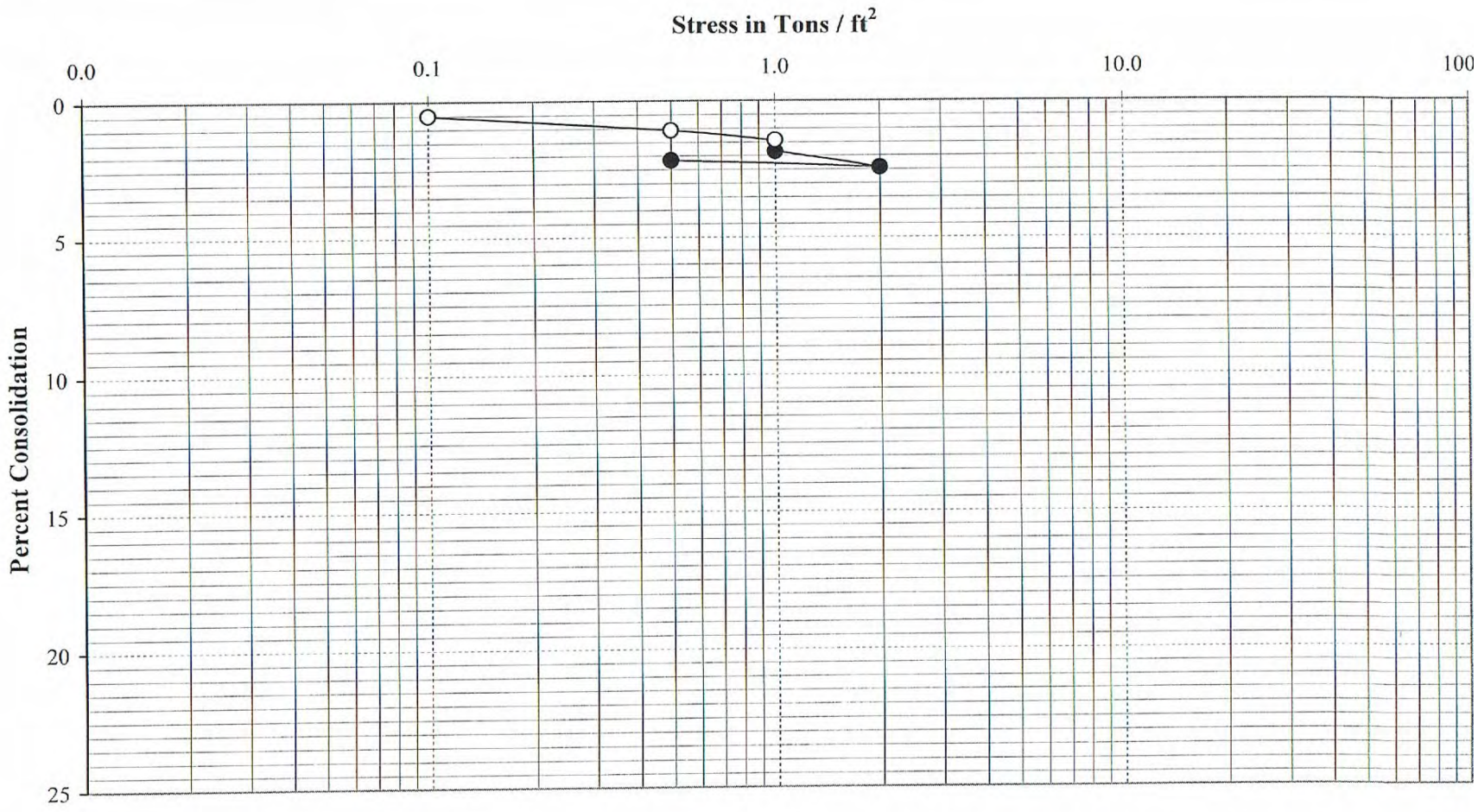


Plate CS - 5

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011 | P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	After	Height (inches)	Diameter (inches)
GB-5	5	22	29	1.0	2.4

Classification : Brown clayey silty sand

Hydroconsolidation = 0.3 %

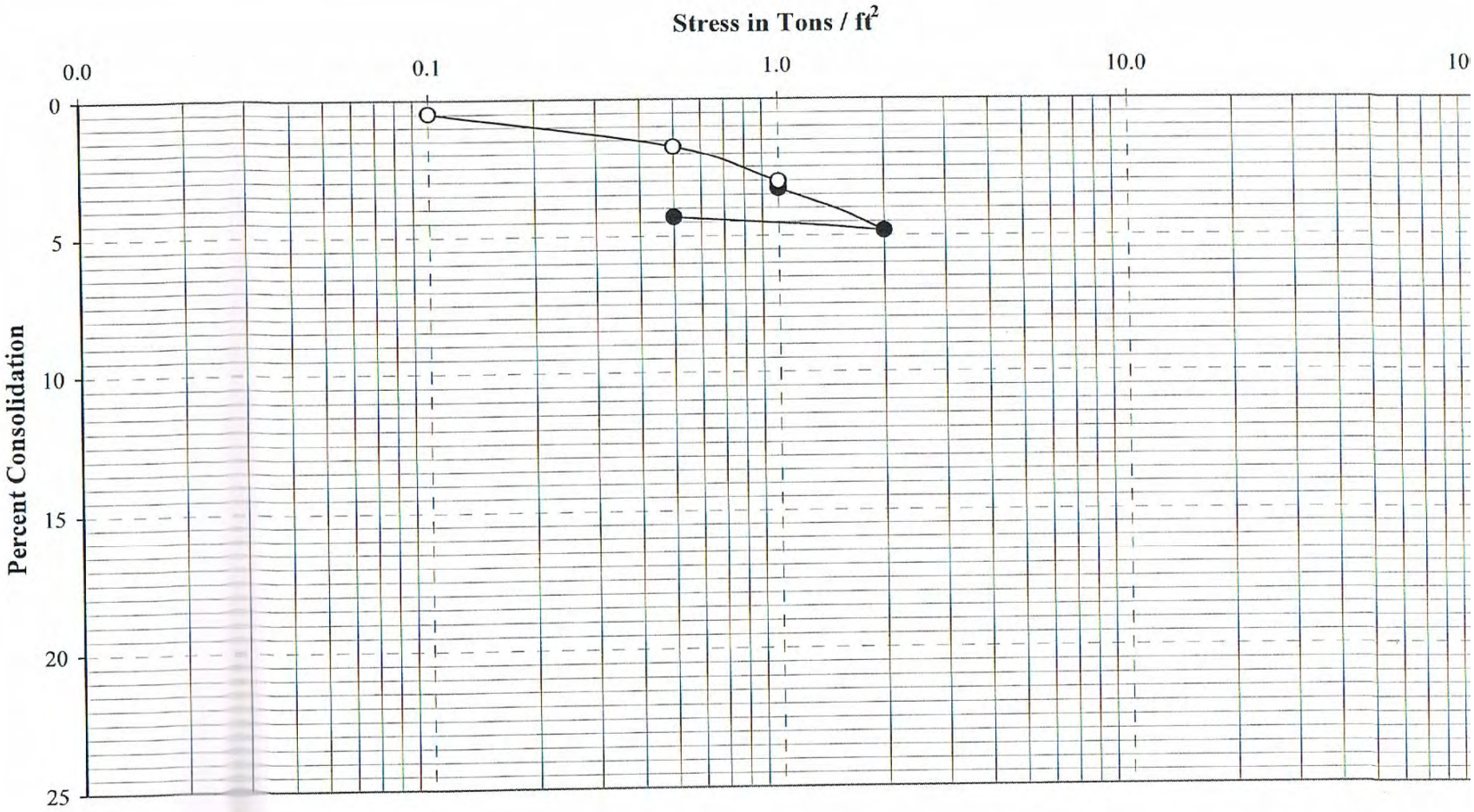


Plate CS - 6

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011

P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	After	Height (inches)	Diameter (inches)
GB-6	5	15	23	1.0	2.4

Classification : Brown clayey sandy silt

Swelling = 0.2 %

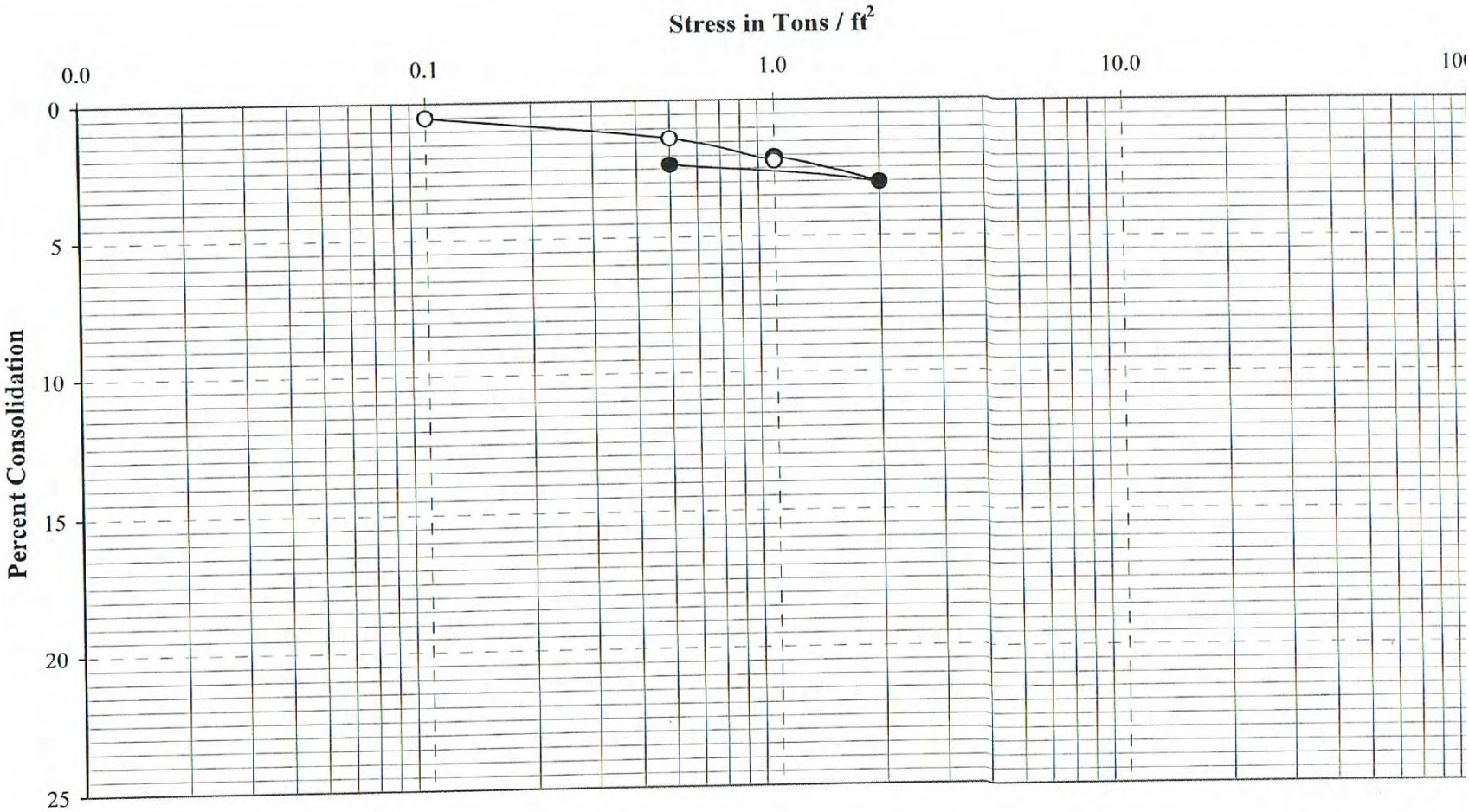


Plate CS - 7

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011

P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	After	Height (inches)	Diameter (inches)
GB-6	10	5	27	1.0	2.4

Classification : Brown silty sand

Hydroconsolidation = 0.7 %

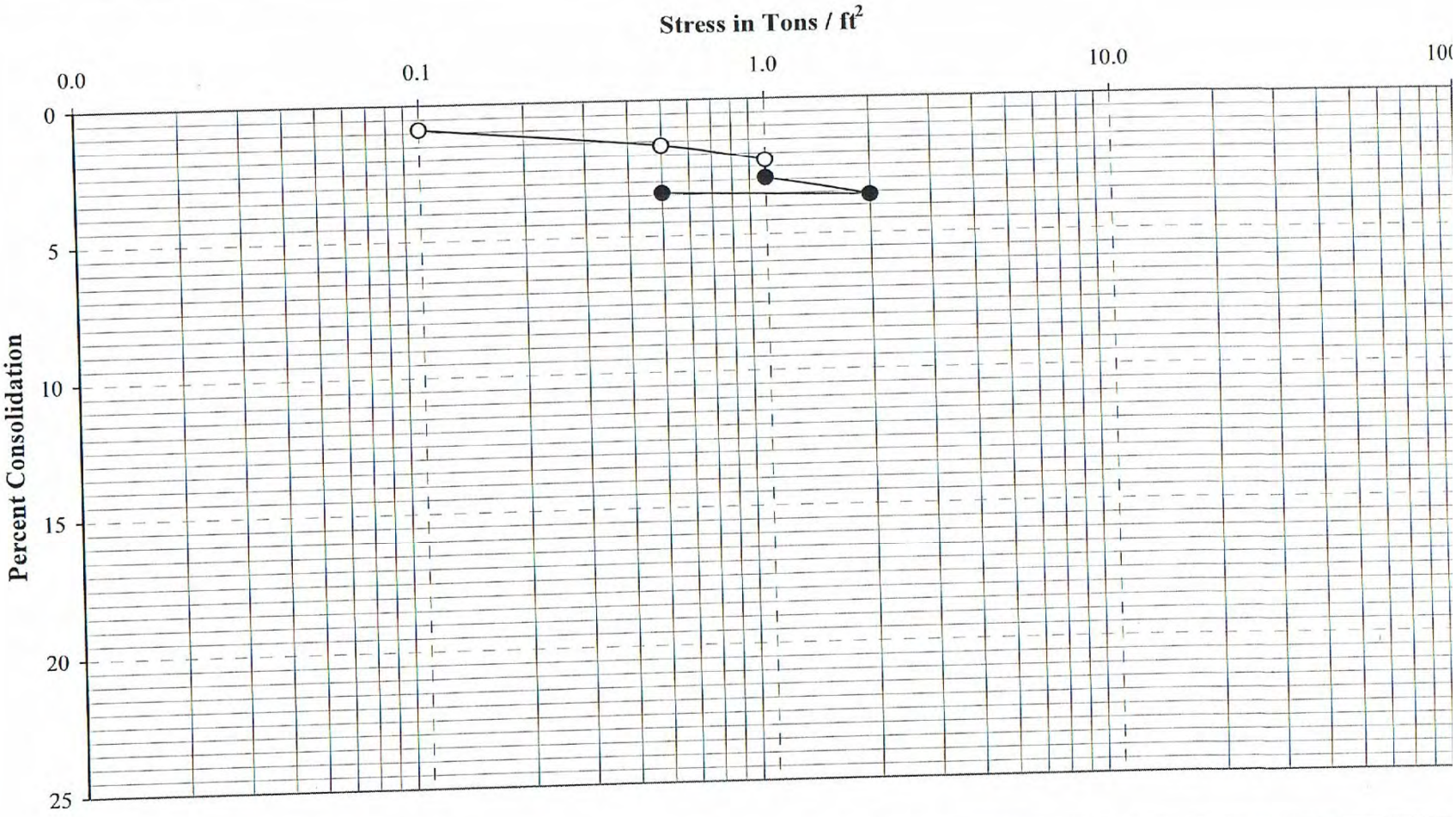


Plate CS - 8

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011

P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	After	Height (inches)	Diameter (inches)
GB-7	10	18	26	1.0	2.4

Classification : Reddish brown silty clay

Hydroconsolidation = 1.1 %

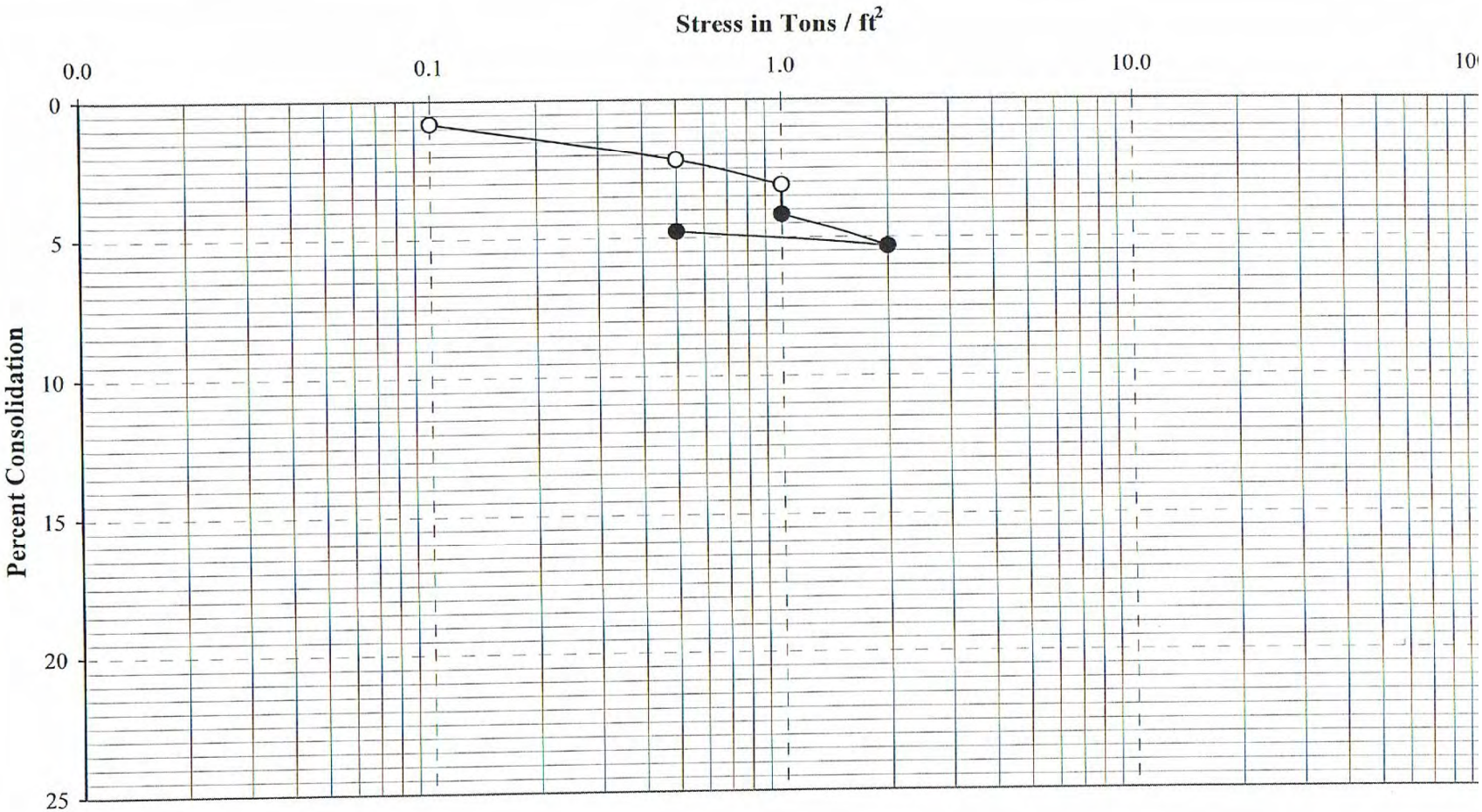


Plate CS - 9

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011 | P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	After	Height (inches)	Diameter (inches)
GB-9	5	17	23	1.0	2.4

Classification : Grayish brown silty clayey sand

Swelling = 0.9 %

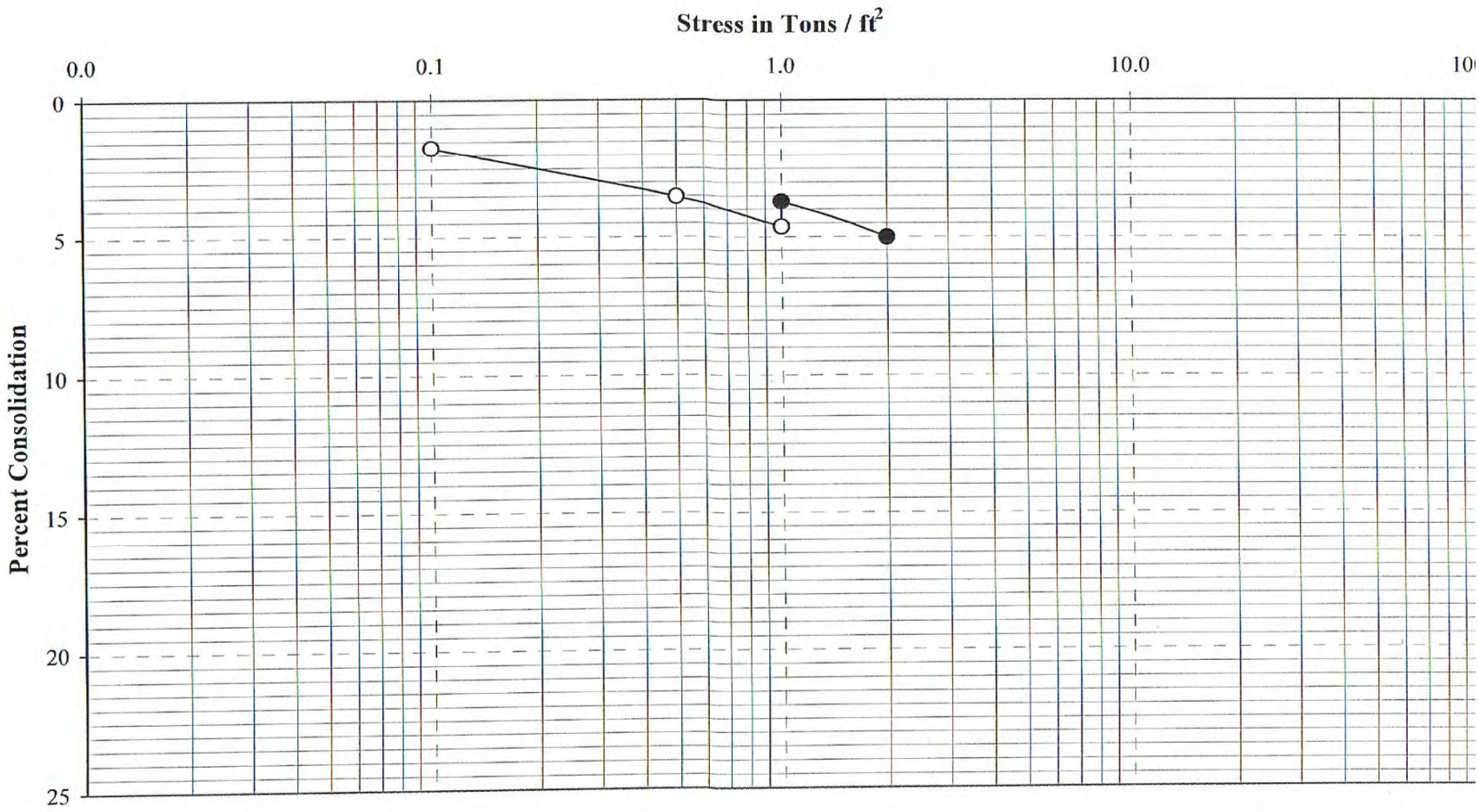


Plate CS - 10

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011 | P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	After	Height (inches)	Diameter (inches)
GB-9	20	20	27	1.0	2.4

Classification : Light gray silty clay

Hydroconsolidation = 1.5 %

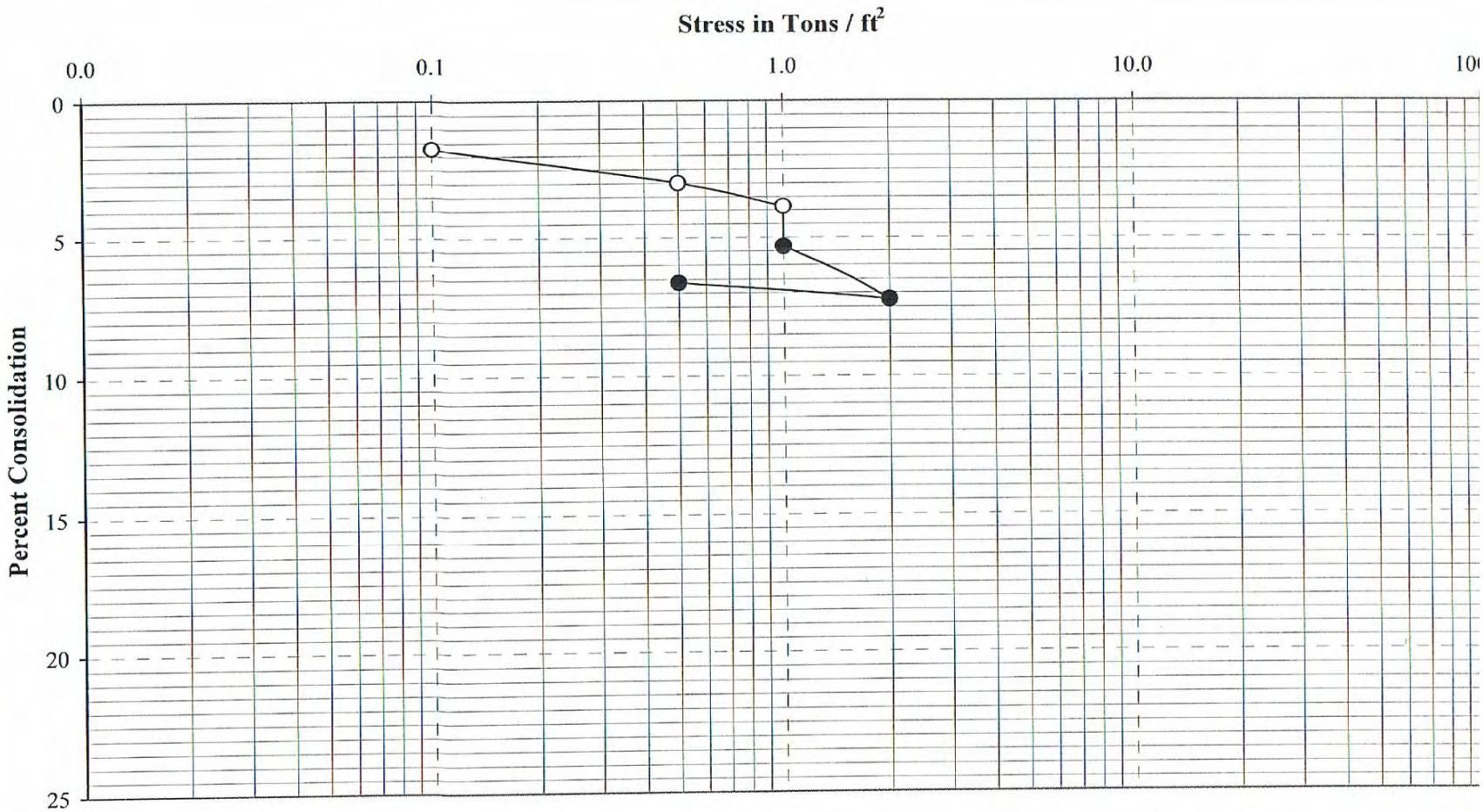


Plate CS - 11

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011 | P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	After	Height (inches)	Diameter (inches)
GB-10	5	6	29	1.0	2.4

Classification : Reddish brown clayey sand

Hydroconsolidation = 9.1 %

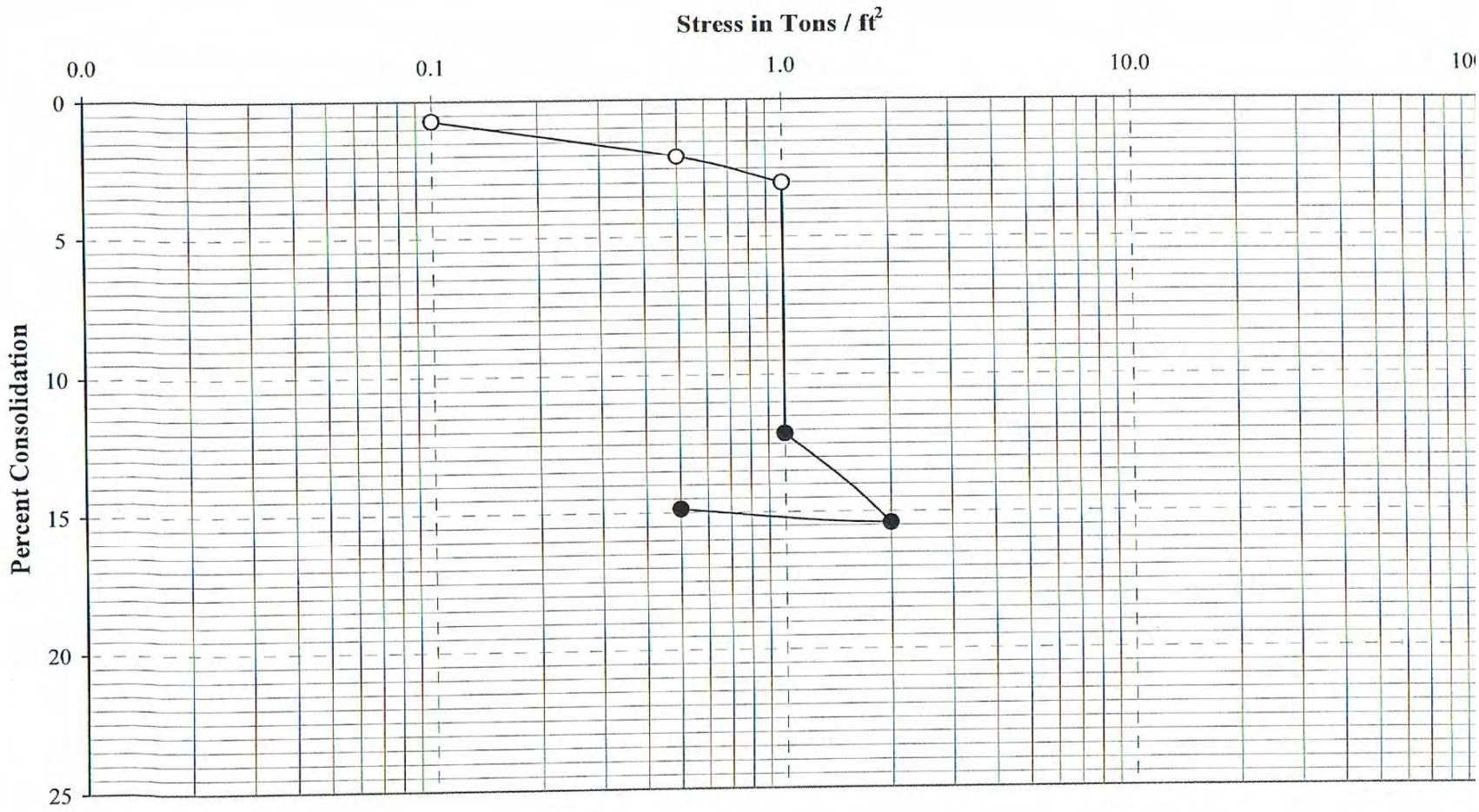


Plate CS - 12

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011 | P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	After	Height (inches)	Diameter (inches)
GB-10	10	1	20	1.0	2.4

Classification : Tan sand

Hydroconsolidation = 0.9 %

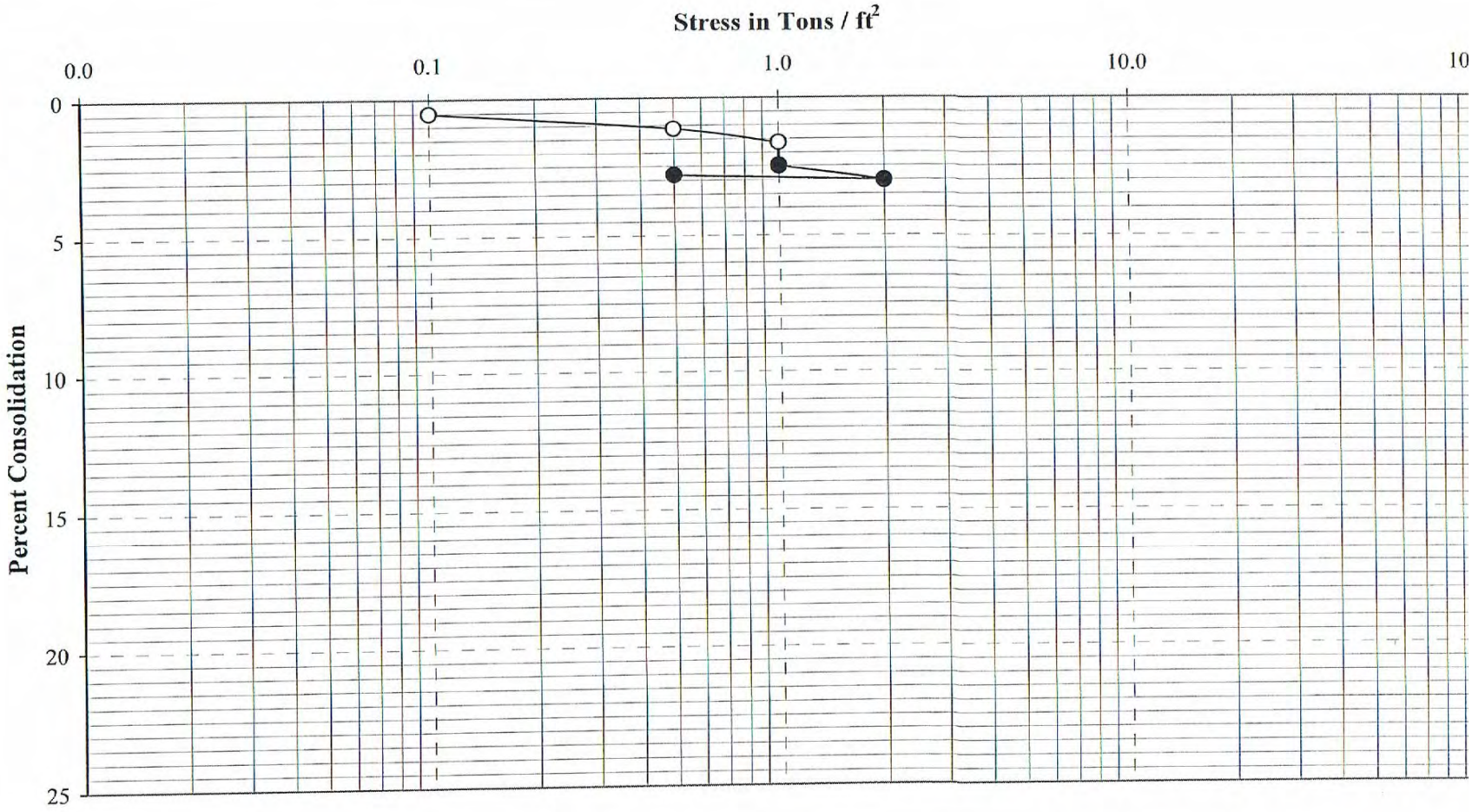


Plate CS - 13

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011 | P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	After	Height (inches)	Diameter (inches)
GB-11	10	14	20	1.0	2.4

Classification : Reddish brown clayey sand

Swelling = 0.5 %

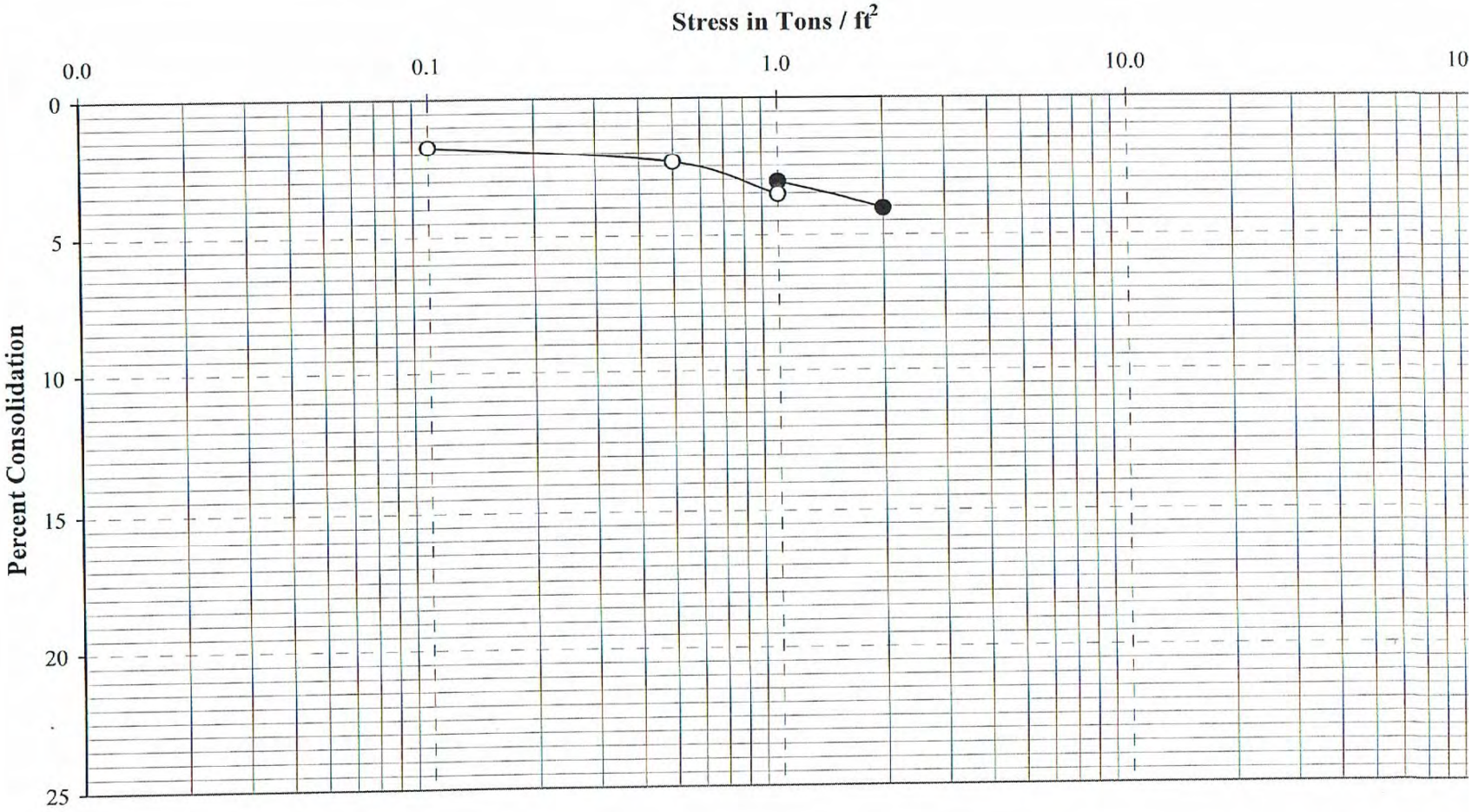


Plate CS - 14

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011

P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	Water Content (%) After	Height (inches)	Diameter (inches)
GB-12	20	13	30	1.0	2.4

Classification : Reddish brown silty sand

Hydroconsolidation = 1.6 %

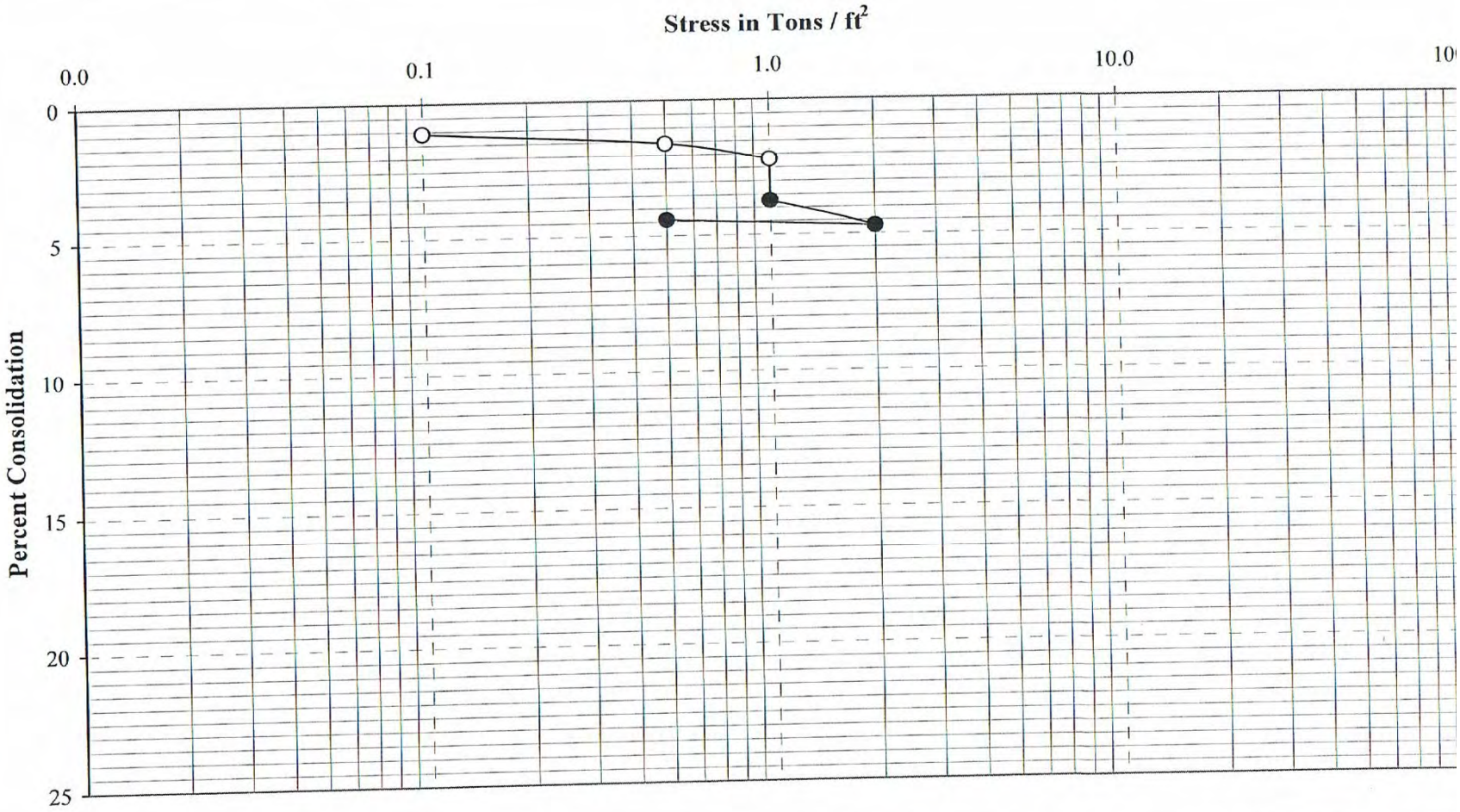


Plate CS - 15

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011

P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	After	Height (inches)	Diameter (inches)
GB-13	10	12	31	1.0	2.4

Classification : Yellow tan sand

Hydroconsolidation = 0.3 %

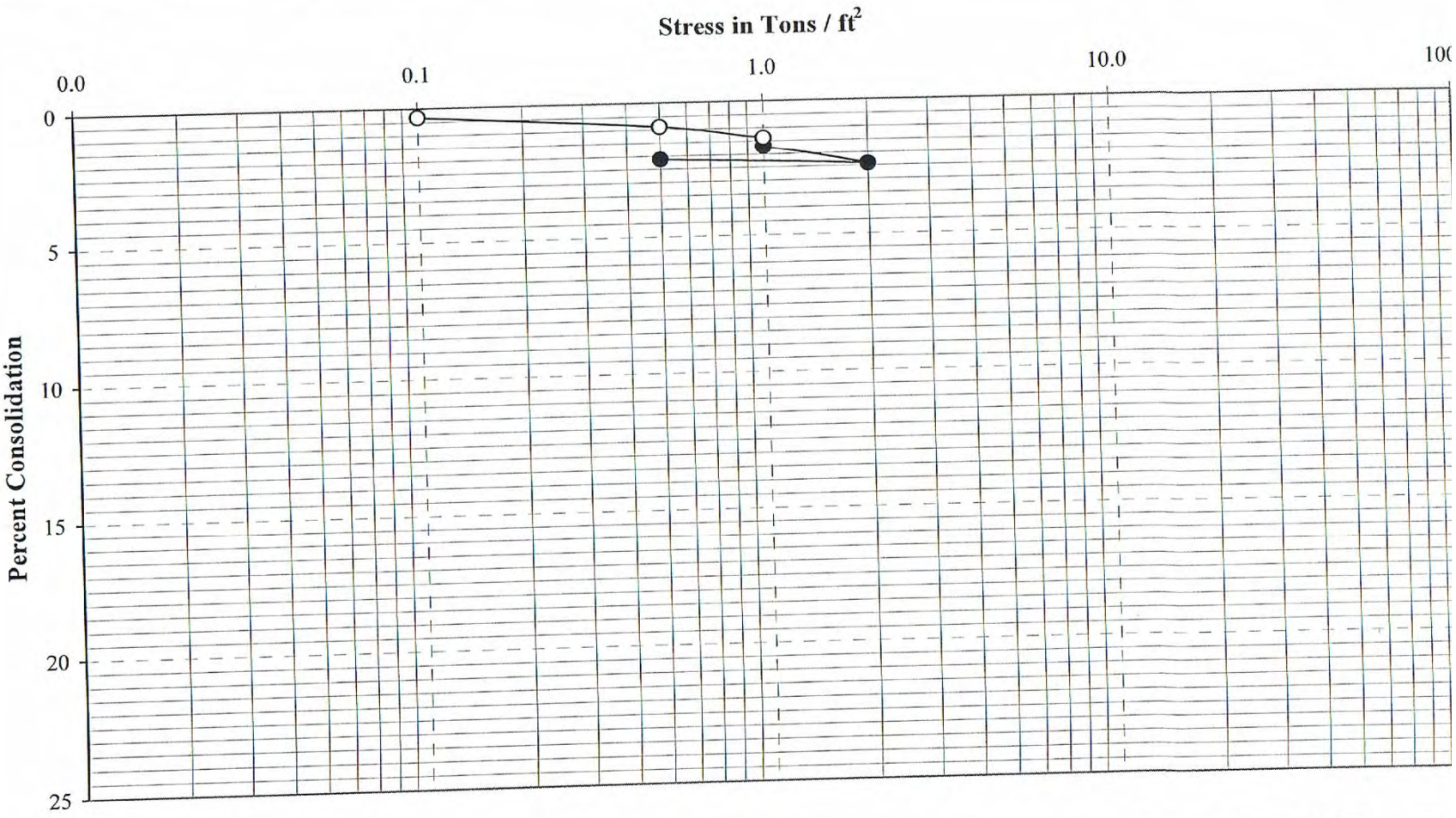


Plate CS - 16

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011 | P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	After	Height (inches)	Diameter (inches)
GB-13	20	21	23	1.0	2.4

Classification : Olive brown silty clay

Swelling = 3.3 %

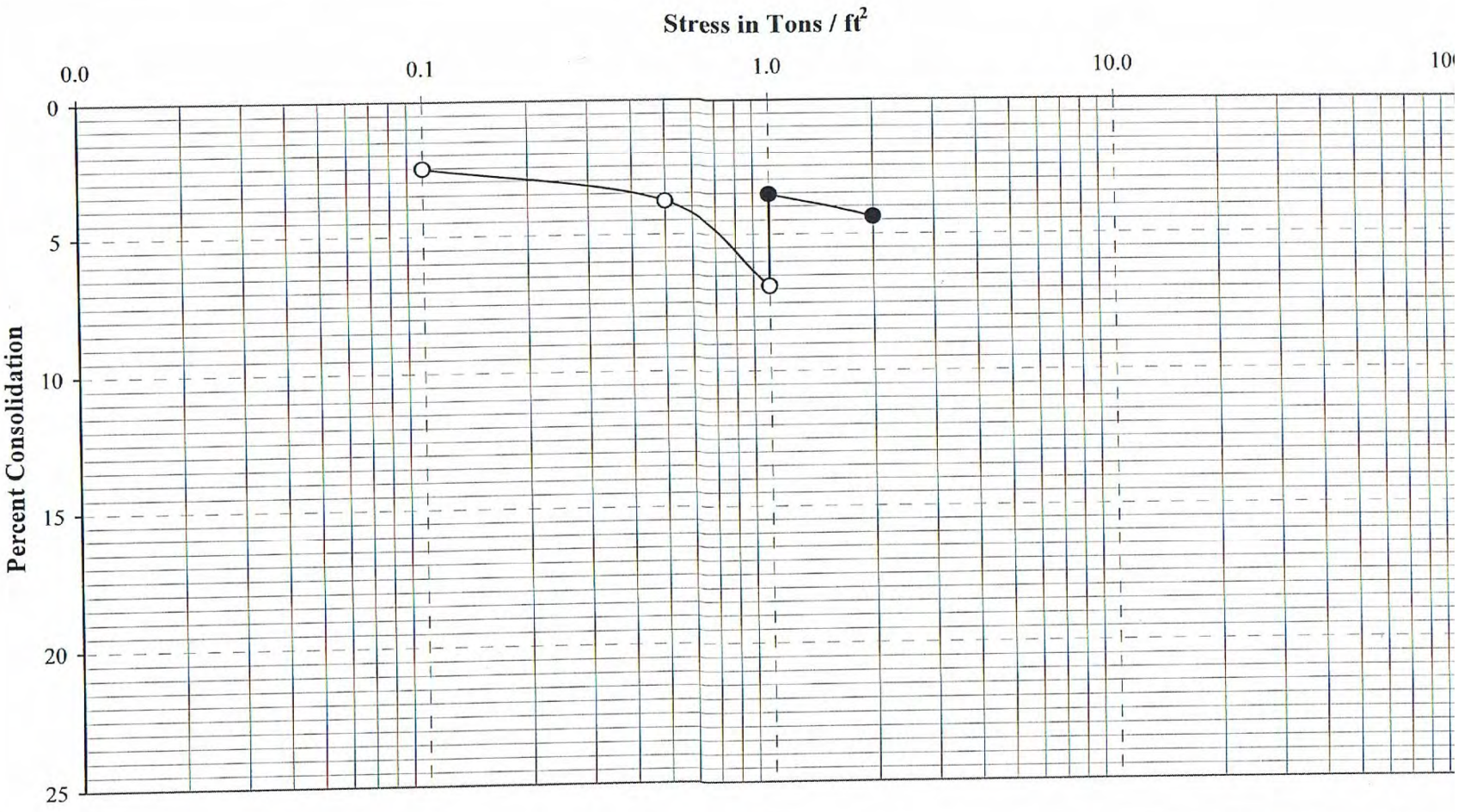


Plate CS - 17

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011

P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	After	Height (inches)	Diameter (inches)
GB-14	7.5	23	27	1.0	2.4

Classification : Olive brown clayey silty sand

Swelling = 0.1 %

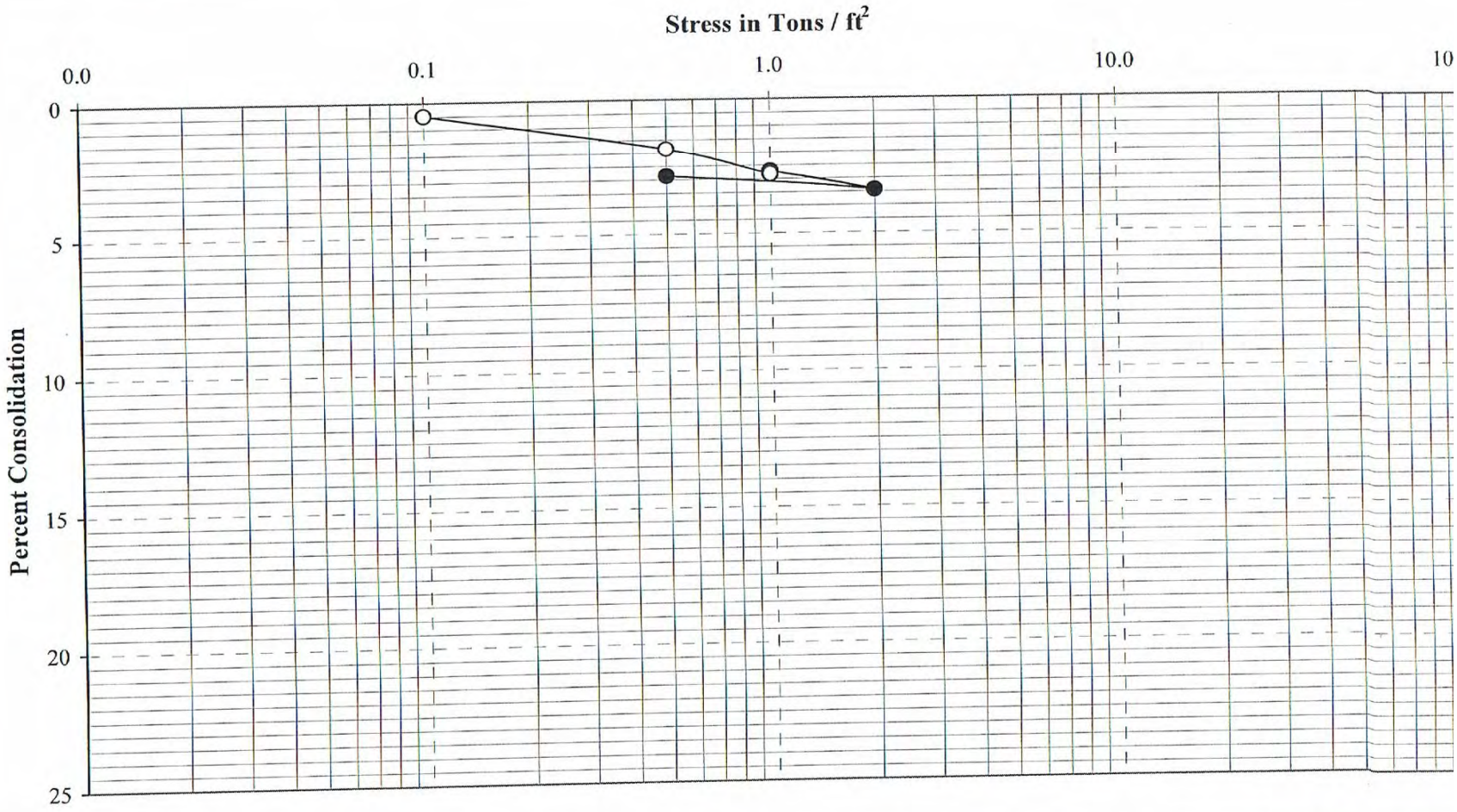


Plate CS - 18

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011 | P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	After	Height (inches)	Diameter (inches)
GB-15	5	19	22	1.0	2.4

Classification : Reddish brown clayey silty sand

Hydroconsolidation = 0 %

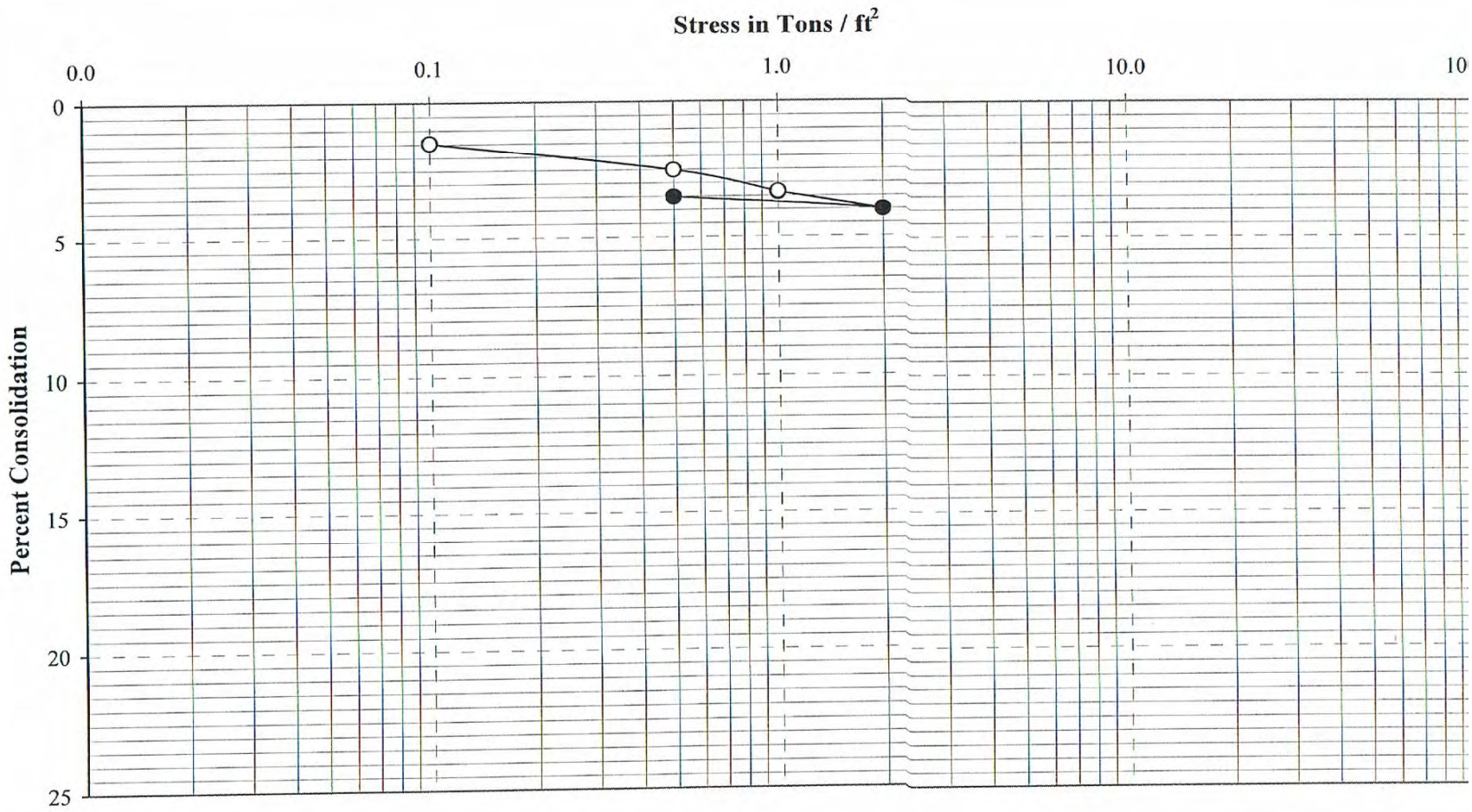


Plate CS - 19

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011 | P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	After	Height (inches)	Diameter (inches)
GB-15	15	28	31	1.0	2.4

Classification : Olive brown clayey silt

Swelling = 1.2 %

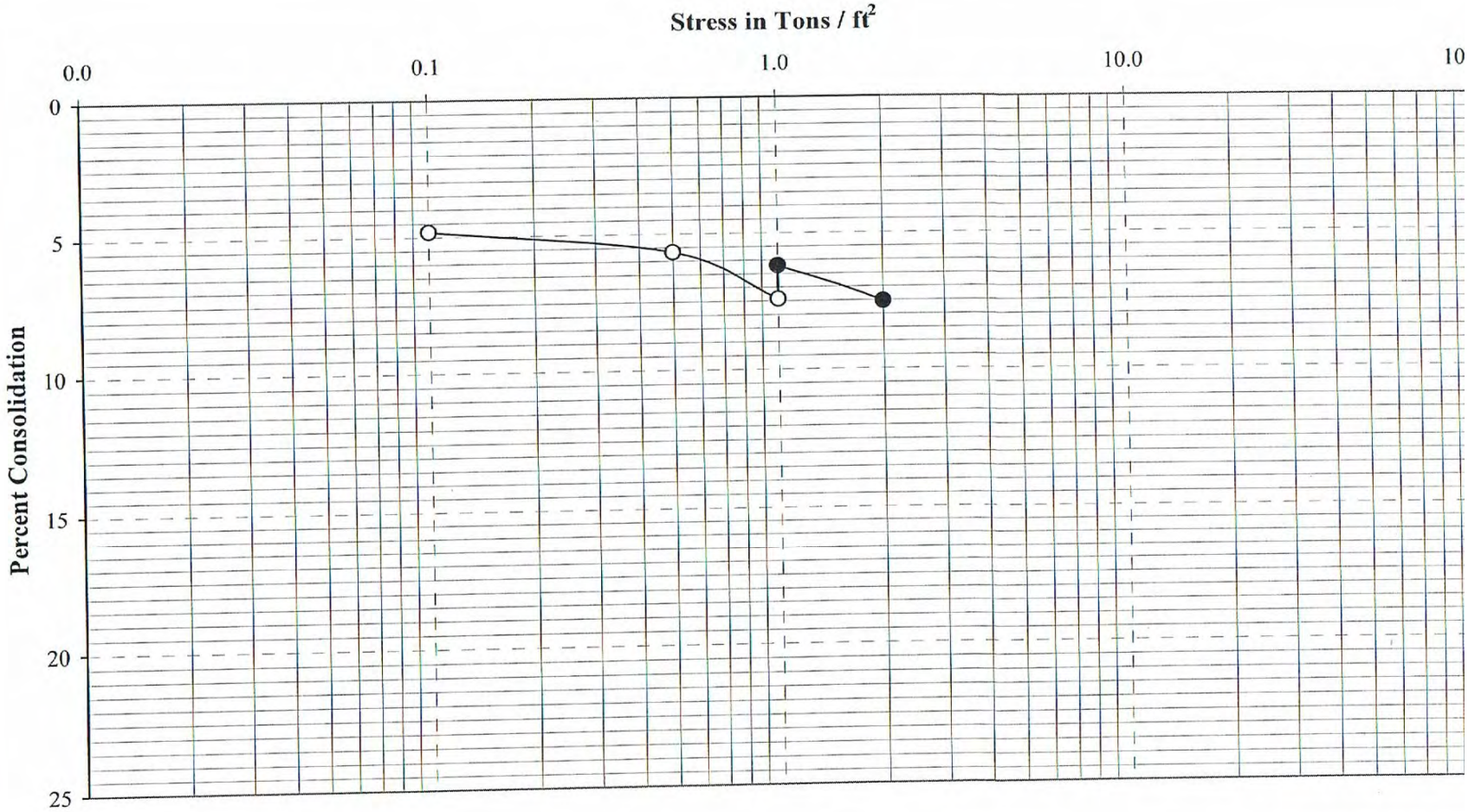


Plate CS - 20

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011

P.N. No: CYG-11-6216

Consolidation Test

Boring	Depth (feet)	Water Content (%) Before	After	Height (inches)	Diameter (inches)
GB-16	10	8	25	1.0	2.4

Classification : Yellowish brown sand

Hydroconsolidation = 0.5 %

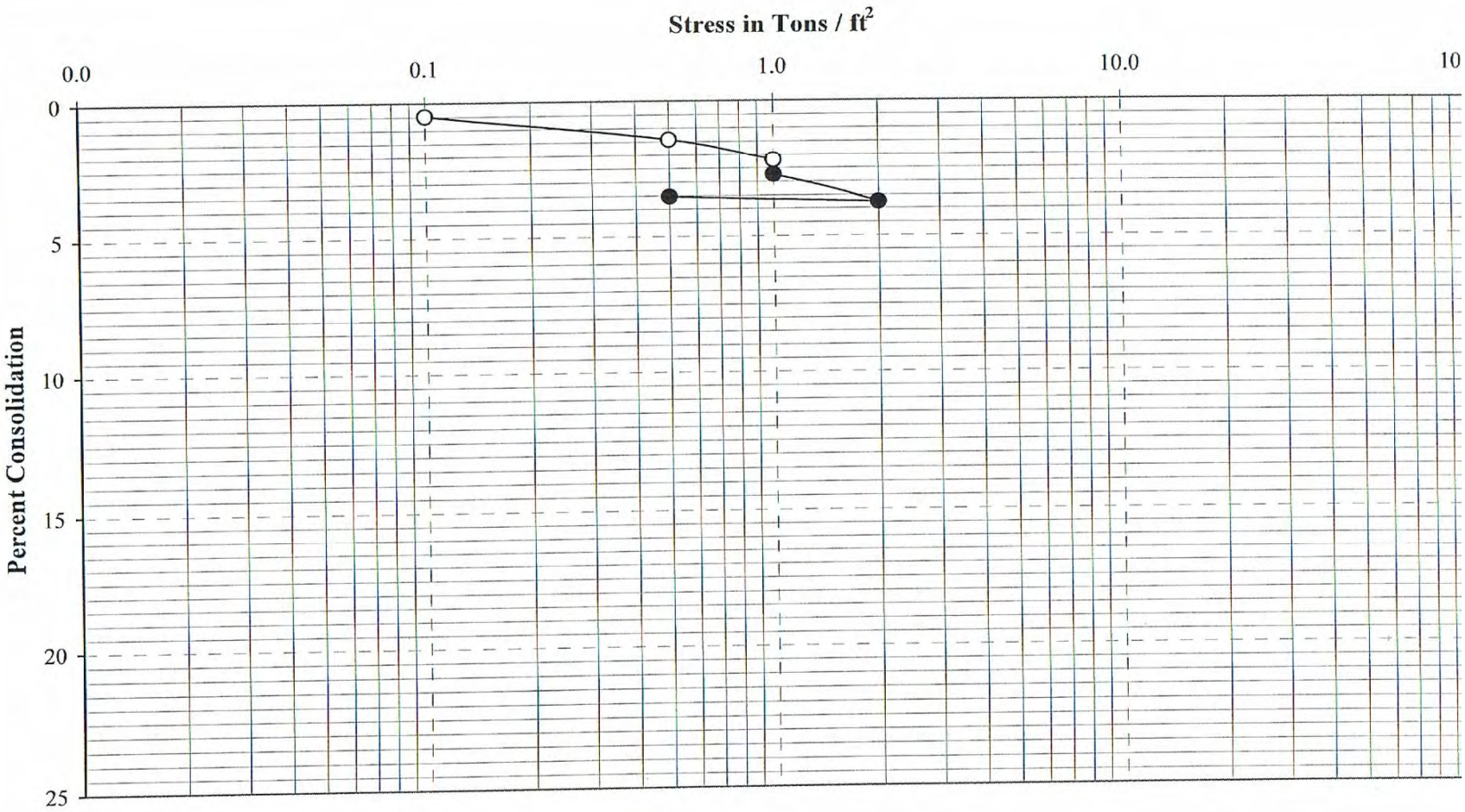
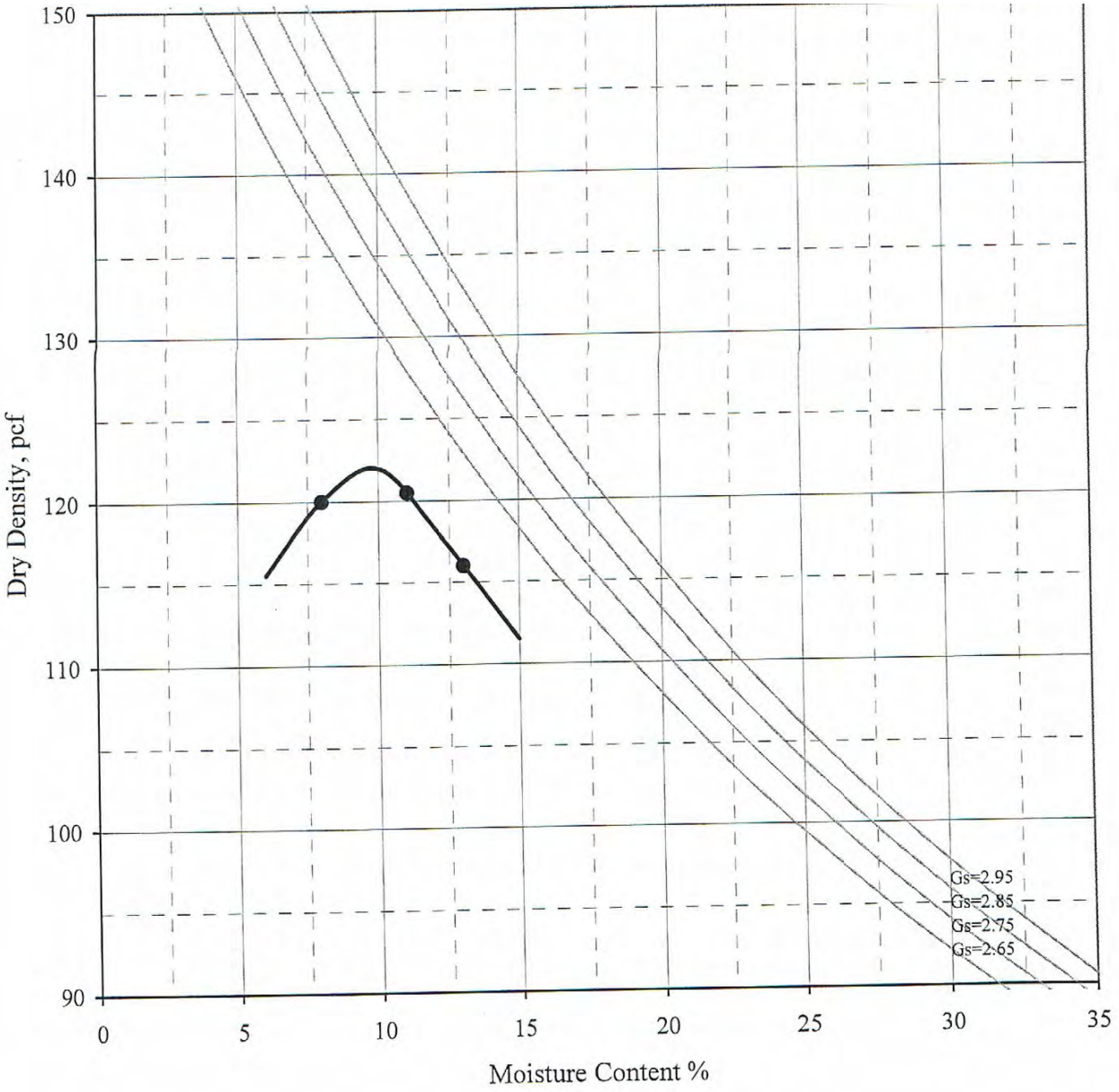
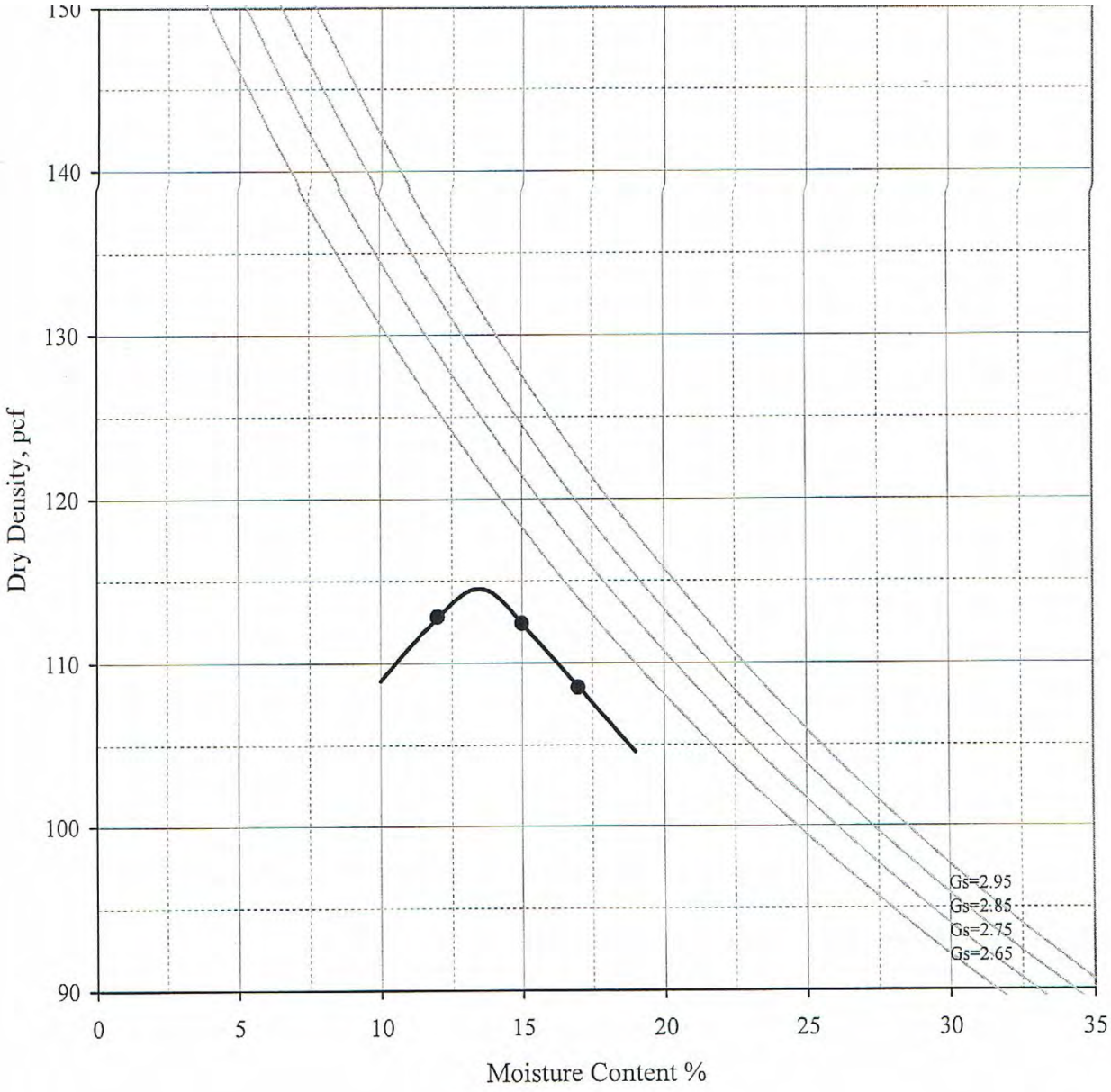


Plate CS - 21



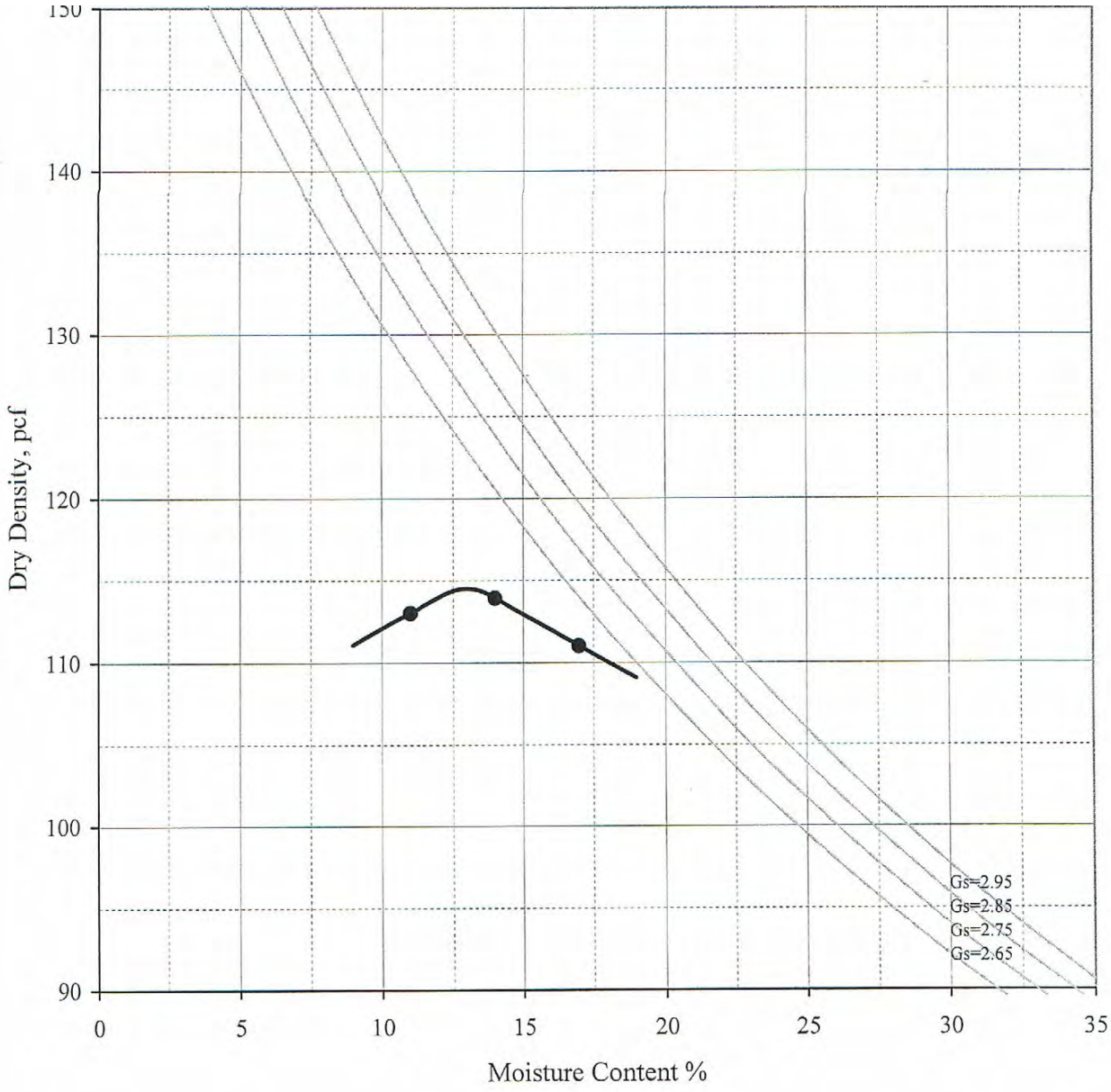
Maximum Dry Density = 122 pcf Optimum Moisture Content = 10 %	Boring: GB-2 Depth : 3 feet Description : Reddish brown sandy silty clay
C. Y. GEOTECH, INC. Geotechnical Engineering and Engineering Geology	GEI / Upper Newport Village
	Date : 10-2011 | P.N. No.: CYG-11-6216
	Compaction Curve

Plate CM - 1



Maximum Dry Density = 114.5 pcf Optimum Moisture Content = 13.5 %	Boring: GB-4 Depth : 4.5 feet Description : Brown silty clay
C. Y. GEOTECH, INC. Geotechnical Engineering and Engineering Geology	GEI / Upper Newport Village Date : 10-2011 | P.N. No.: CYG-11-6216 **Compaction Curve**

Plate CM - 2



Maximum Dry Density = 114.5 pcf Optimum Moisture Content = 13 %	Boring: GB-5 Depth : 3 feet Description : Brown silty clay
C. Y. GEOTECH, INC. Geotechnical Engineering and Engineering Geology	GEI / Upper Newport Village Date : 10-2011 | P.N. No.: CYG-11-6216 **Compaction Curve**

Plate CM - 3

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 09-2011 | P.N. No.: CYG-11-6216

Sieve / Hydrometer Analysis

Boring	Depth (feet)	γ Field (pcf)	γ Saturate (pcf)	Fines (%)	D_{50} (mm)
GB-1	15	-- --	-- --	24	0.190

Classification : Light gray silty sand

Clay Content = 5 %

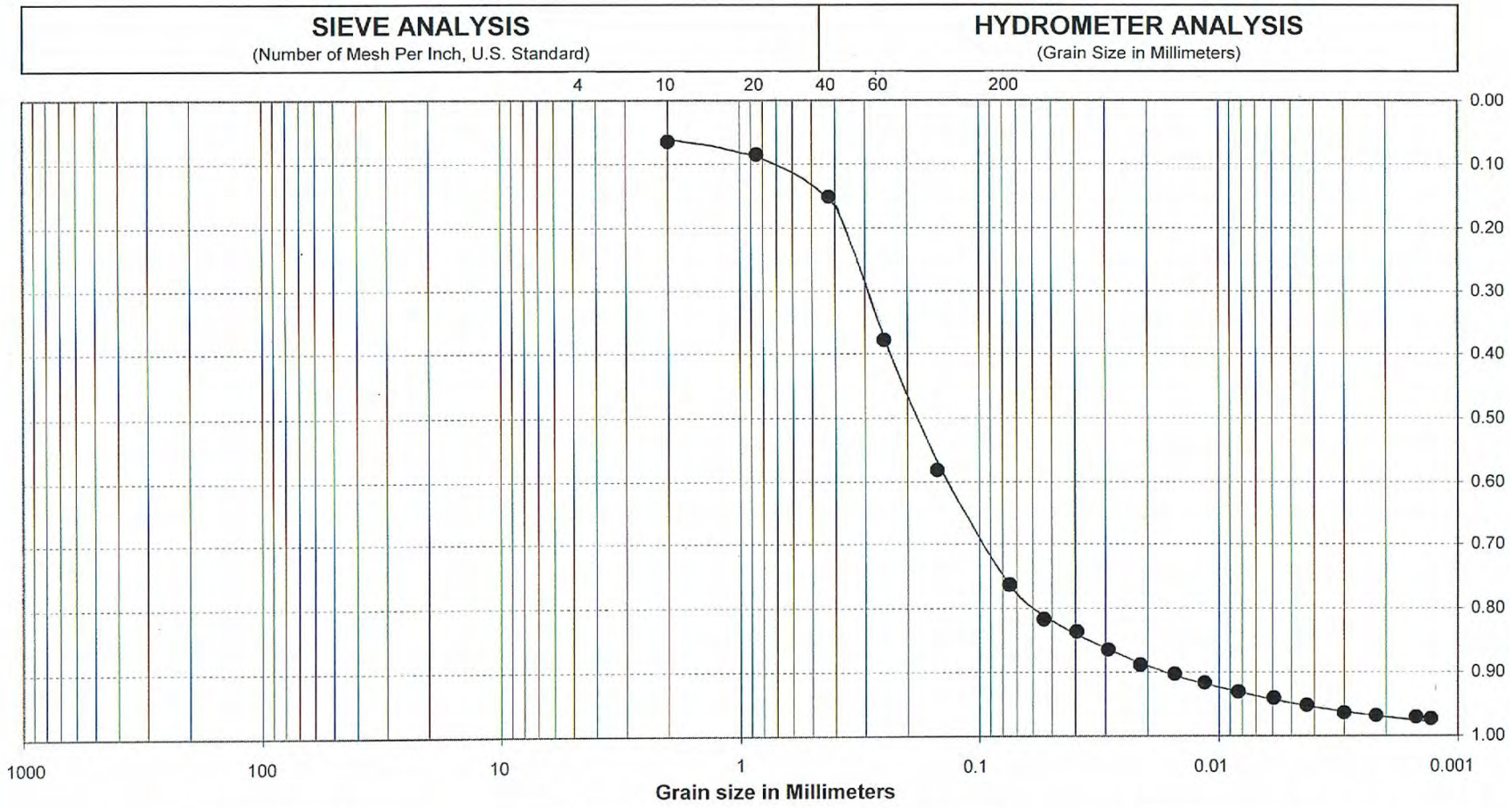


Plate GS - 1

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 09-2011 | P.N. No.: CYG-11-6216

Sieve / Hydrometer Analysis

Boring	Depth (feet)	γ Field (pcf)	γ Saturate (pcf)	Fines (%)	D_{50} (mm)
GB-2	15	-- --	-- --	35	0.176

Classification : Reddish brown clayey silty sand

Clay Content = 13 %

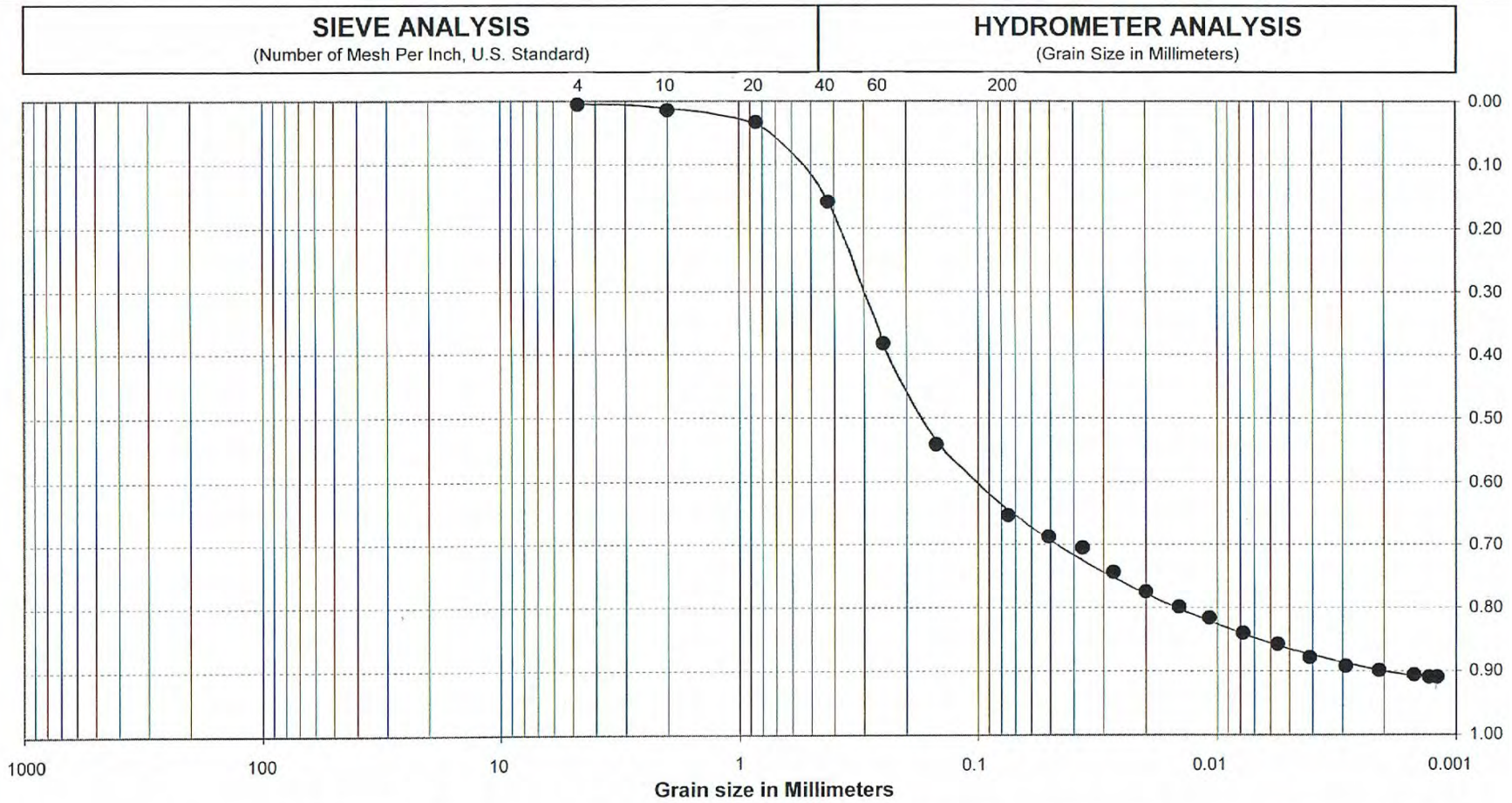


Plate GS - 2

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 09-2011 | P.N. No.: CYG-11-6216

Sieve Analysis

Boring	Depth (feet)	γ Field (pcf)	γ Saturate (pcf)	Fines (%)	D_{50} (mm)
GB-4	25	-- --	-- --	13	0.396

Classification : Brown sand

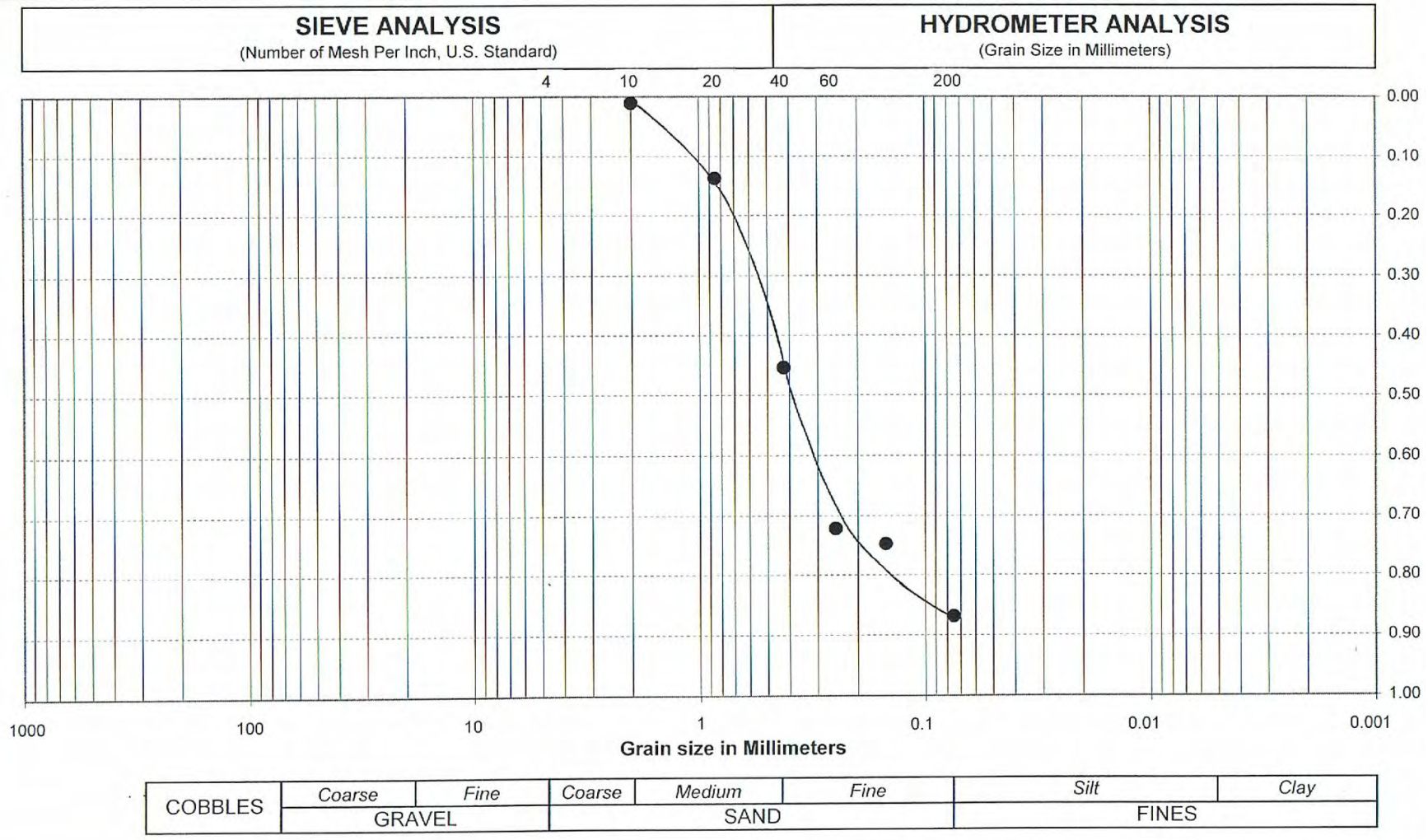


Plate GS - 3

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 09-2011 | P.N. No.: CYG-11-6216

Sieve / Hydrometer Analysis

Boring	Depth (feet)	γ Field (pcf)	γ Saturate (pcf)	Fines (%)	D_{50} (mm)
GB-4	45	-- --	-- --	91	0.016

Classification : Dark gray clayey silt

Clay Content = 32 %

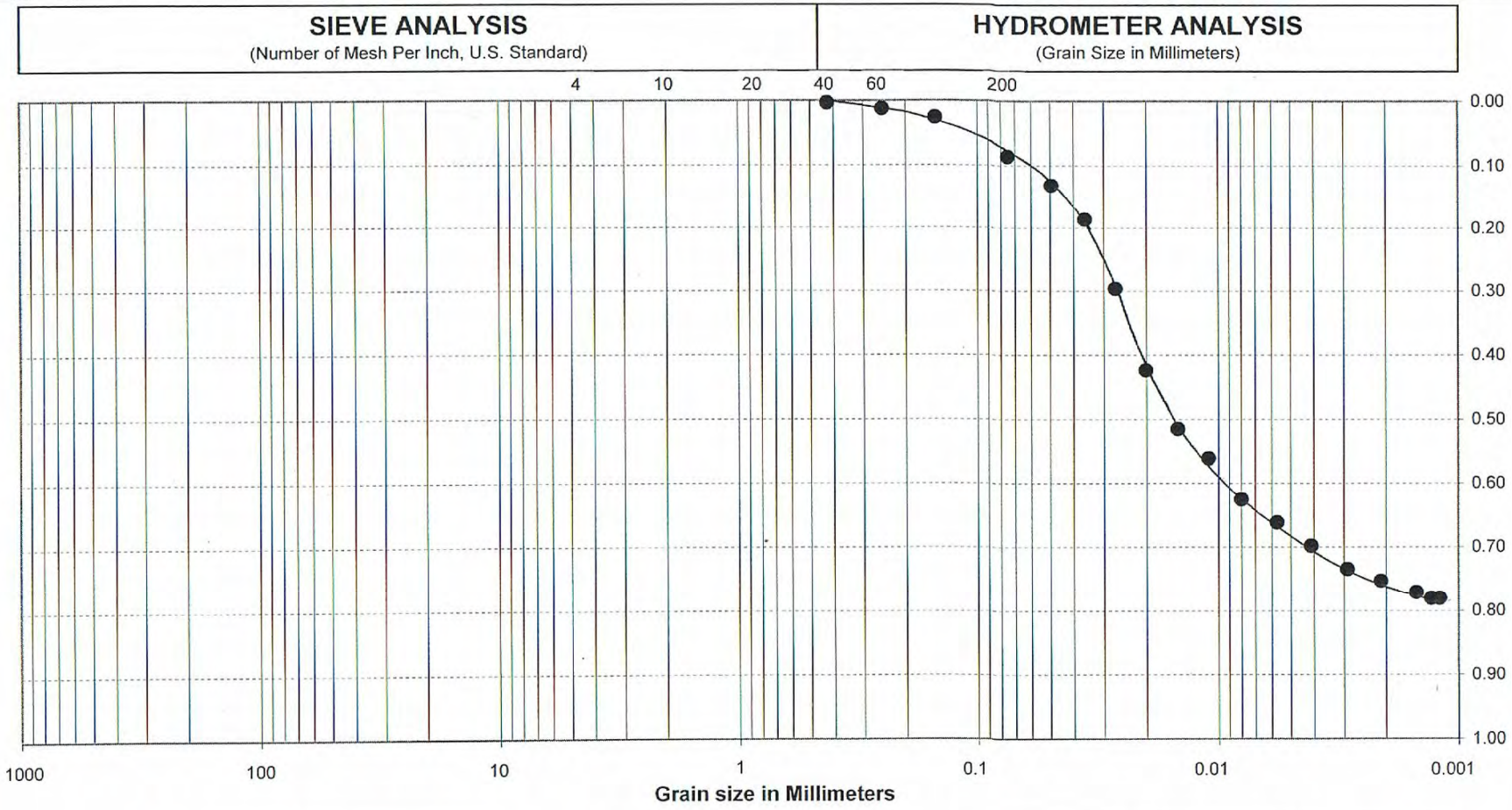


Plate GS - 4

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 09-2011 | P.N. No.: CYG-11-6216

Sieve Analysis

Boring	Depth (feet)	γ Field (pcf)	γ Saturate (pcf)	Fines (%)	D_{50} (mm)
GB-5	45	-- --	-- --	10	0.213

Classification : Light gray sand

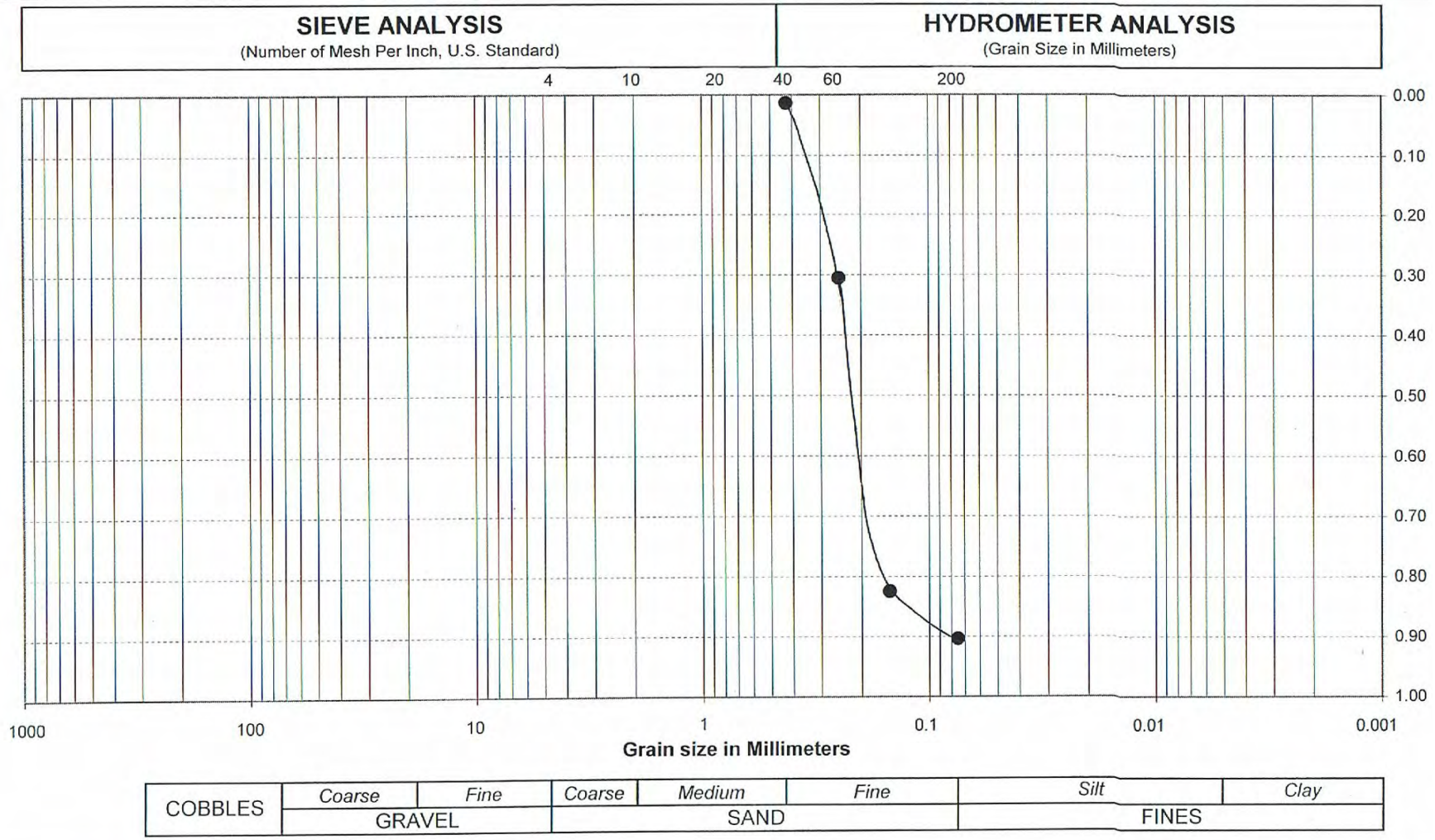


Plate GS - 5

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 09-2011 | P.N. No.: CYG-11-6216

Sieve Analysis

Boring	Depth (feet)	γ Field (pcf)	γ Saturate (pcf)	Fines (%)	D_{50} (mm)
GB-6	7.5	103	126	7	0.355

Classification : Brown sand

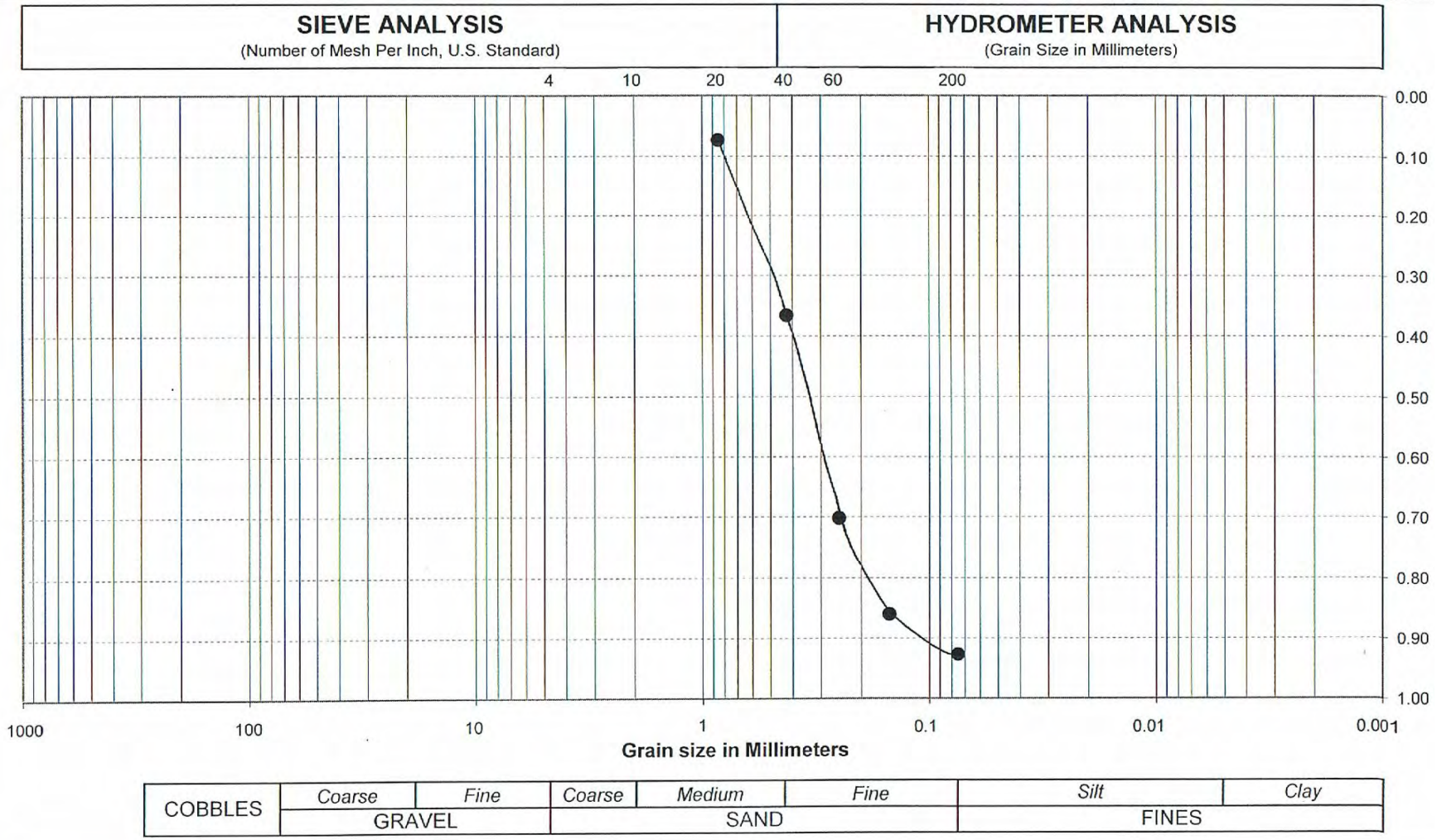


Plate GS - 6

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 09-2011 | P.N. No.: CYG-11-6216

Sieve / Hydrometer Analysis

Boring	Depth (feet)	γ Field (pcf)	γ Saturate (pcf)	Fines (%)	D_{50} (mm)
GB-6	15	-- --	-- --	82	0.007

Classification : Brown sandy silty clay

Clay Content = 46 %

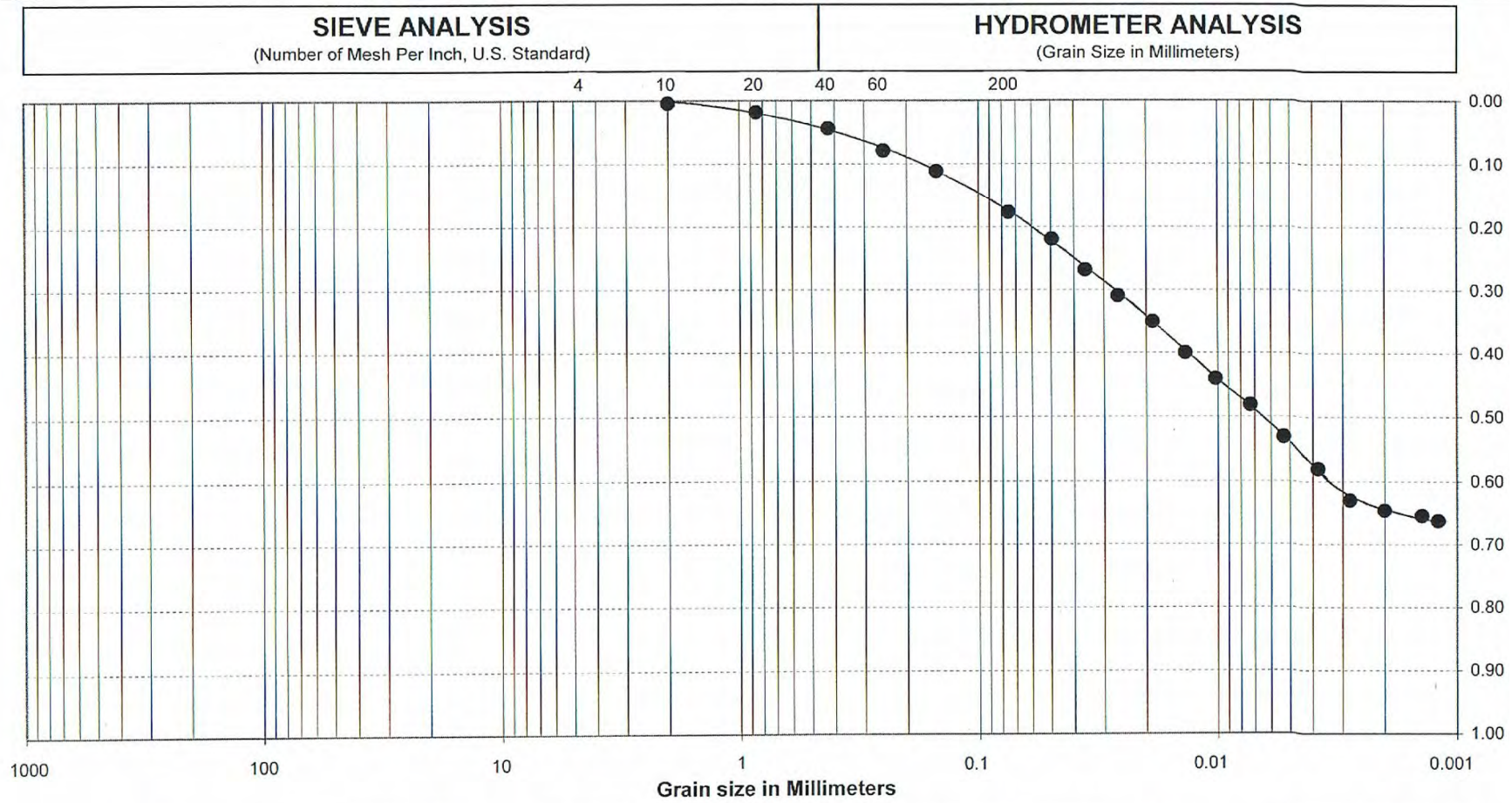


Plate GS - 7

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 09-2011 | P.N. No.: CYG-11-6216

Sieve / Hydrometer Analysis

Boring	Depth (feet)	γ Field (pcf)	γ Saturate (pcf)	Fines (%)	D_{50} (mm)
GB-7	40	126	128	40	0.100

Classification : Reddish brown clayey silty sand

Clay Content = 14 %

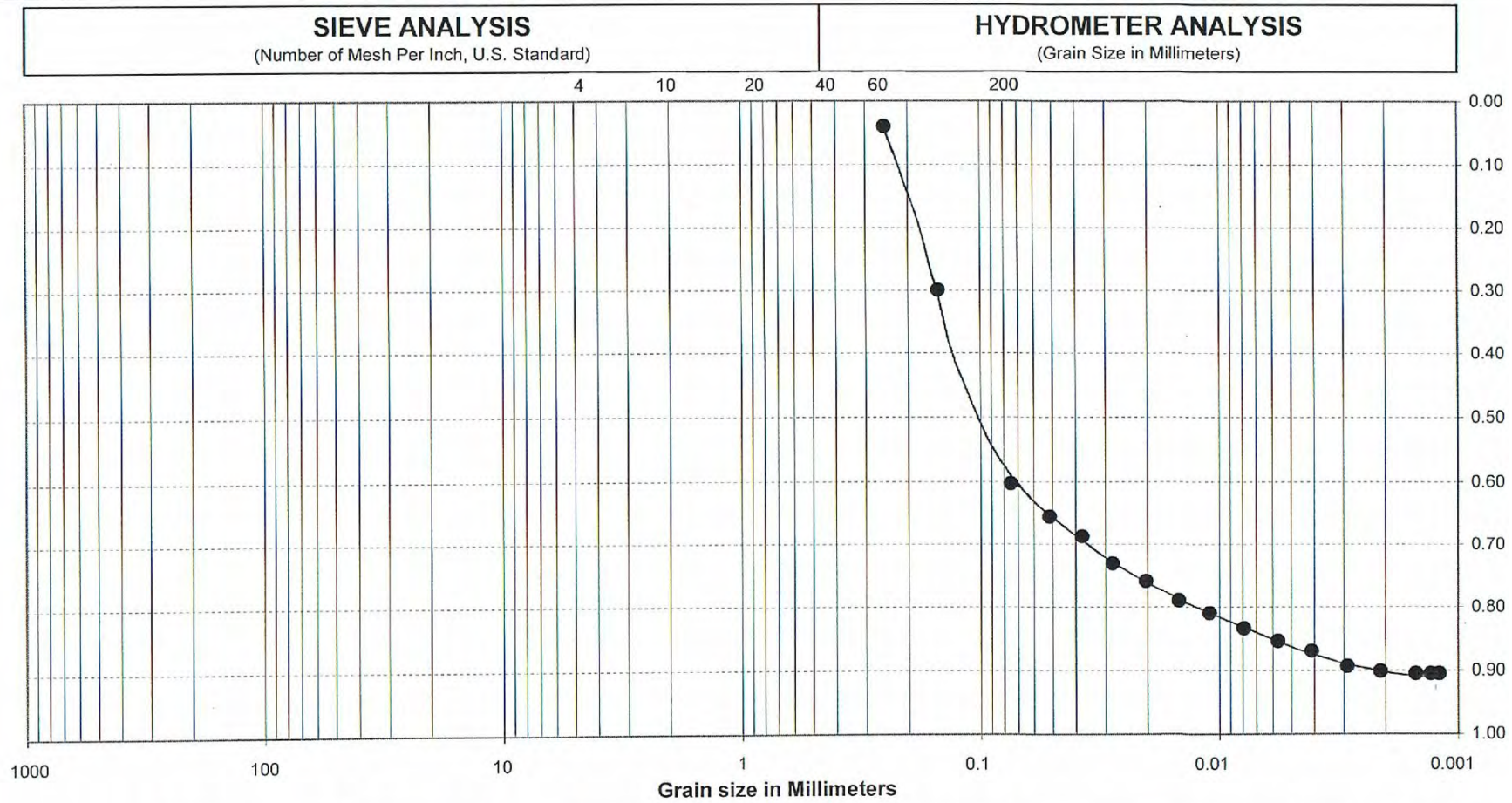


Plate GS - 8

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011 | P.N. No.: CYG-11-6216

Sieve / Hydrometer Analysis

Boring	Depth (feet)	γ Field (pcf)	γ Saturate (pcf)	Fines (%)	D_{50} (mm)
GB-8	15	-- --	-- --	66	0.020

Classification : Reddish brown silty sandy clay

Clay Content = 36 %

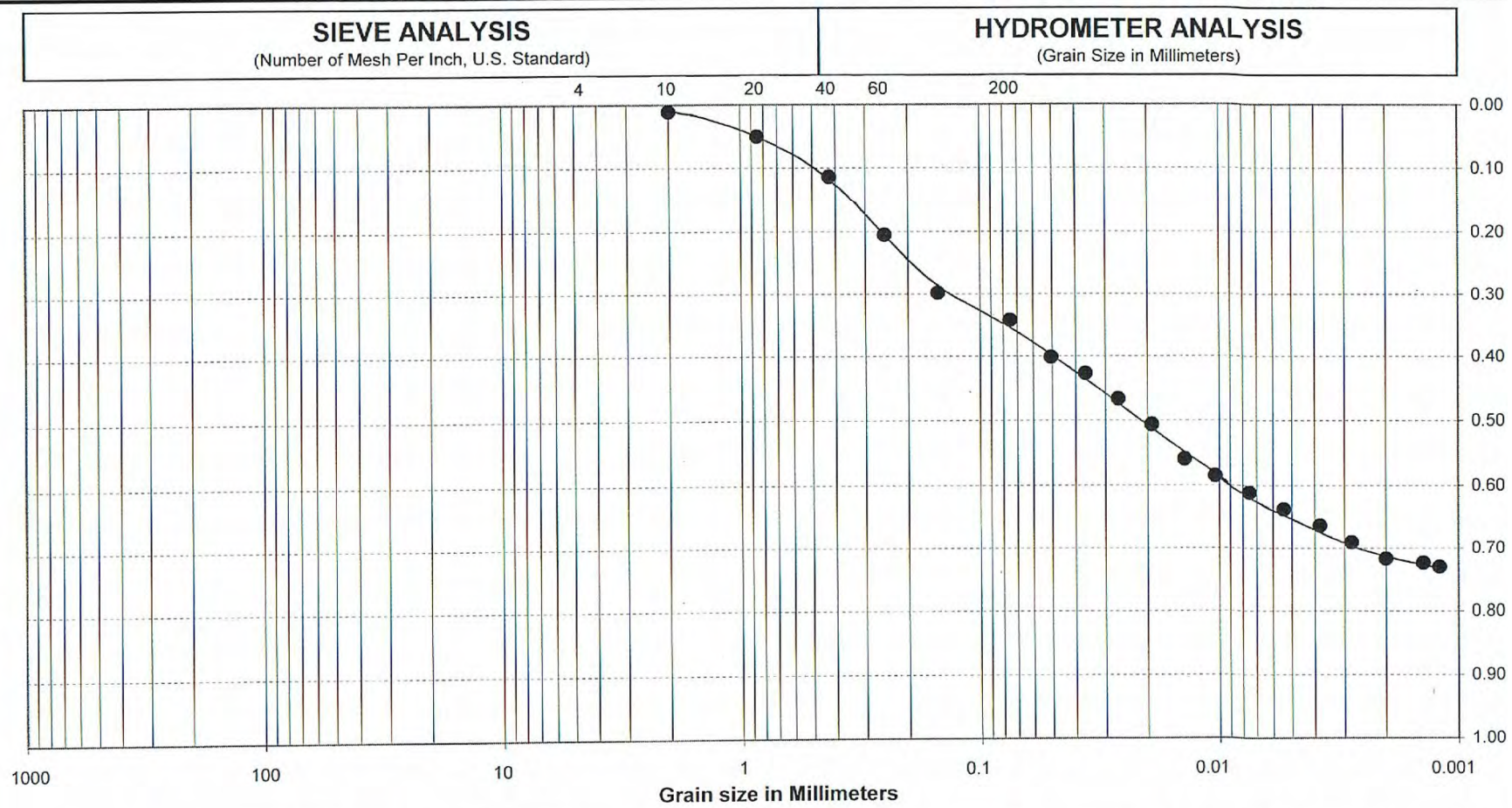


Plate GS - 9

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 09-2011 | P.N. No.: CYG-11-6216

Sieve Analysis

Boring	Depth (feet)	γ Field (pcf)	γ Saturate (pcf)	Fines (%)	D_{50} (mm)
GB-9	30	129	135	4	0.733

Classification : Light gray sand

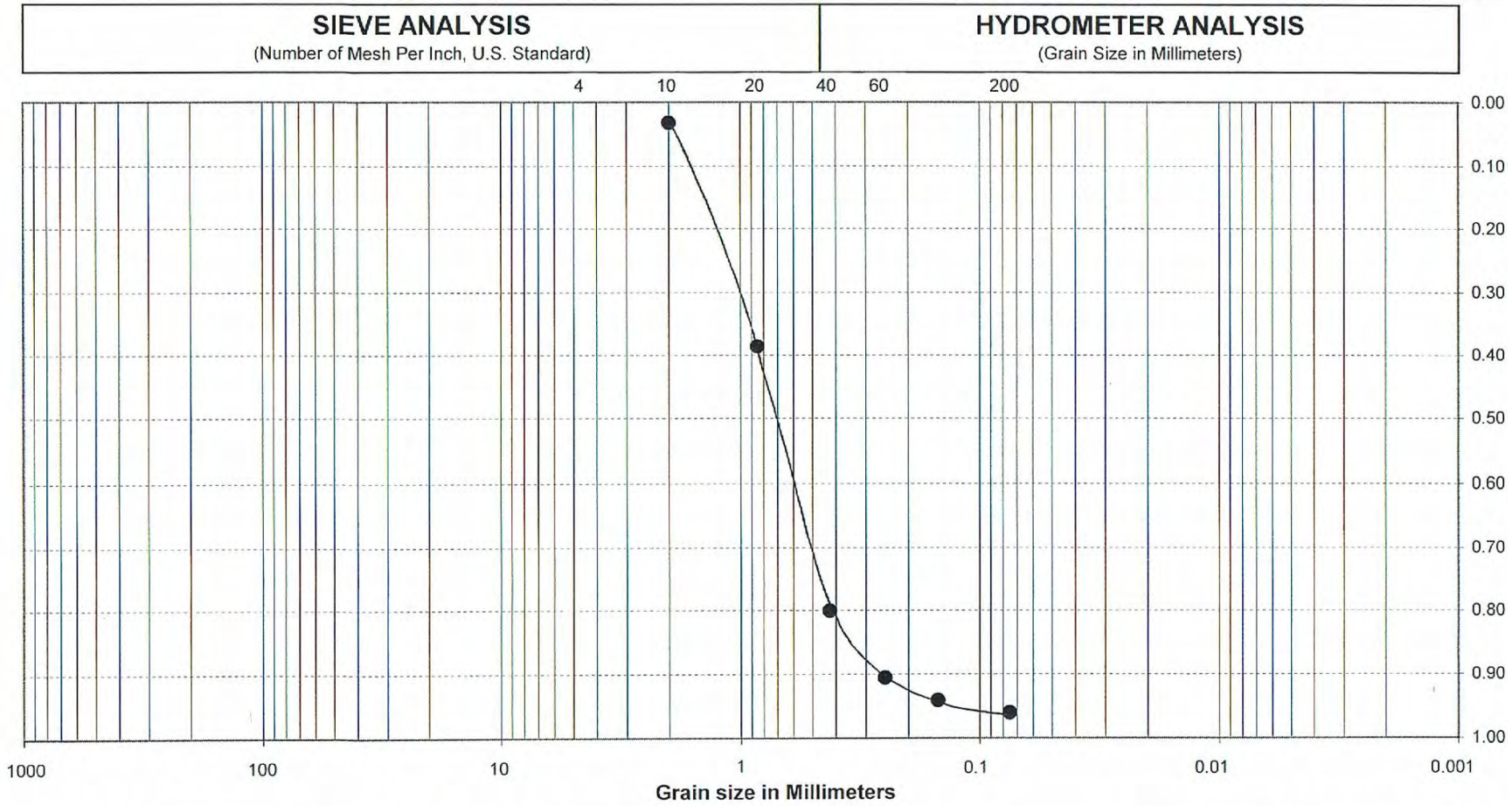


Plate GS - 10

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011 | P.N. No.: CYG-11-6216

Sieve / Hydrometer Analysis

Boring	Depth (feet)	γ Field (pcf)	γ Saturate (pcf)	Fines (%)	D_{50} (mm)
GB-11	15	-- --	-- --	65	0.030

Classification : Reddish brown clayey sandy silt

Clay Content = 21 %

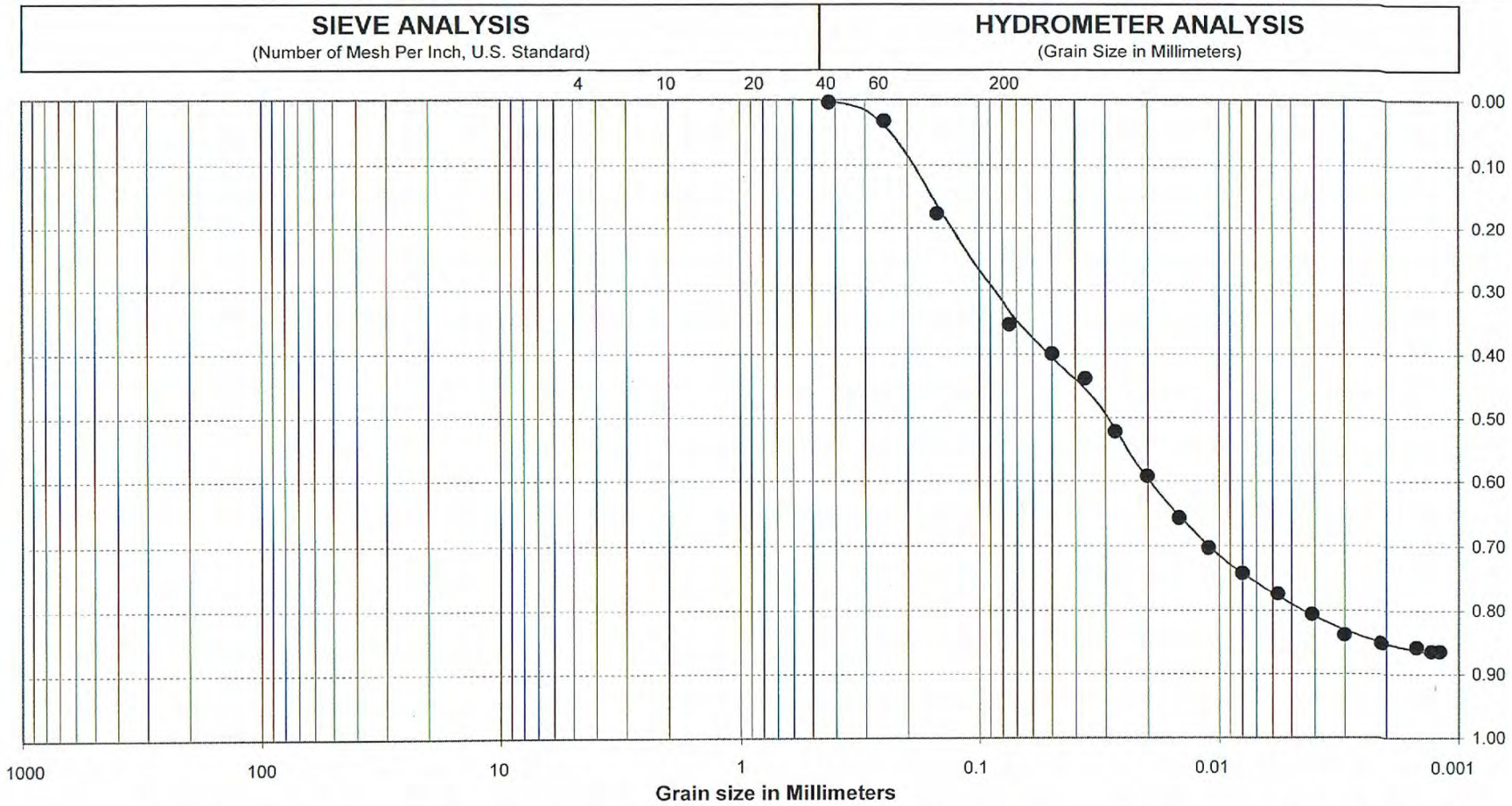


Plate GS - 11

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011 | P.N. No.: CYG-11-6216

Sieve Analysis

Boring	Depth (feet)	γ Field (pcf)	γ Saturate (pcf)	Fines (%)	D_{50} (mm)
GB-12	35	-- --	-- --	7	0.346

Classification : Brown sand

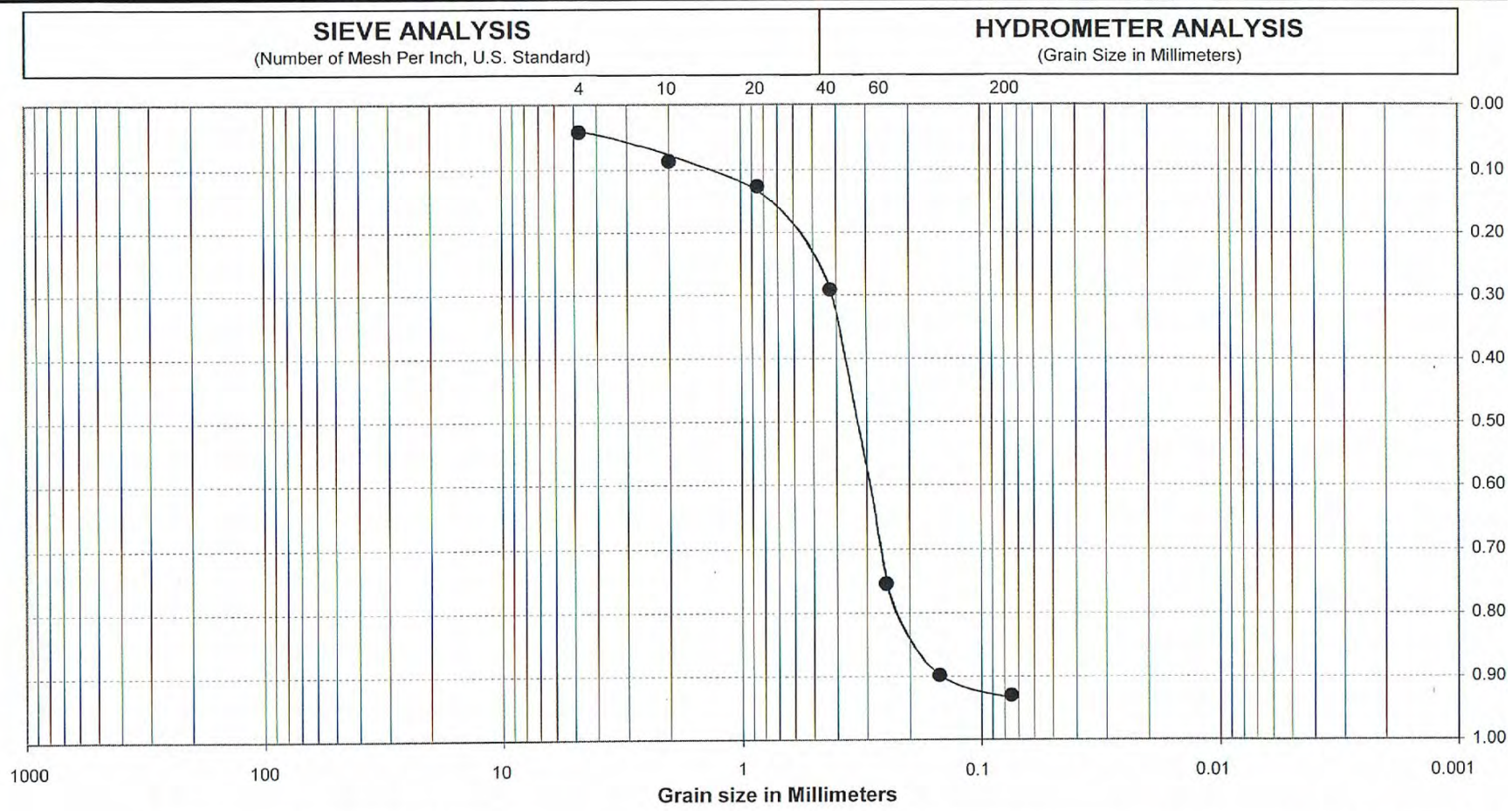


Plate GS - 12

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011 | P.N. No.: CYG-11-6216

Sieve Analysis

Boring	Depth (feet)	γ Field (pcf)	γ Saturate (pcf)	Fines (%)	D_{50} (mm)
GB-14	25	-- --	-- --	9	0.317

Classification : Light gray sand

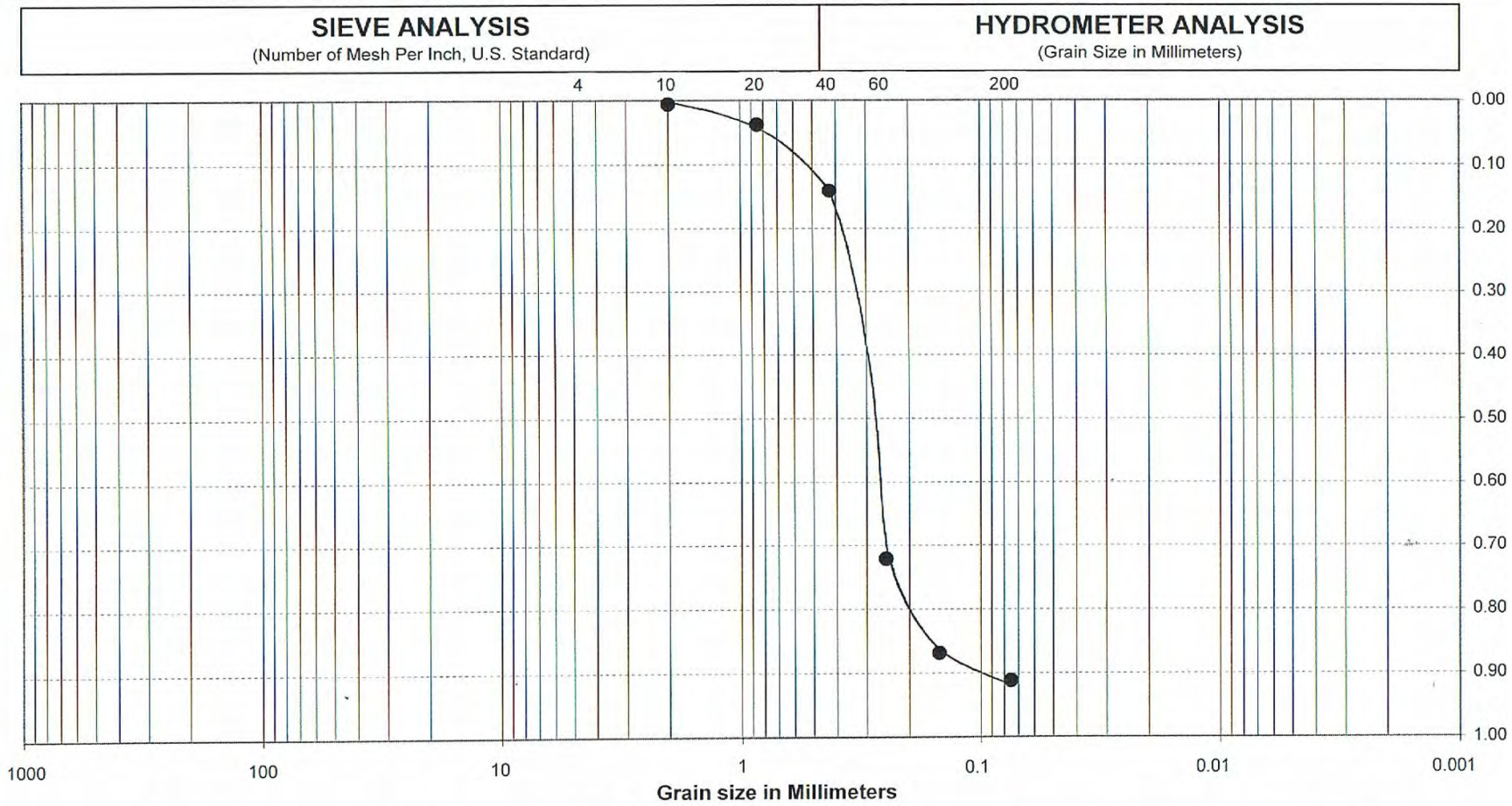


Plate GS - 13

C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

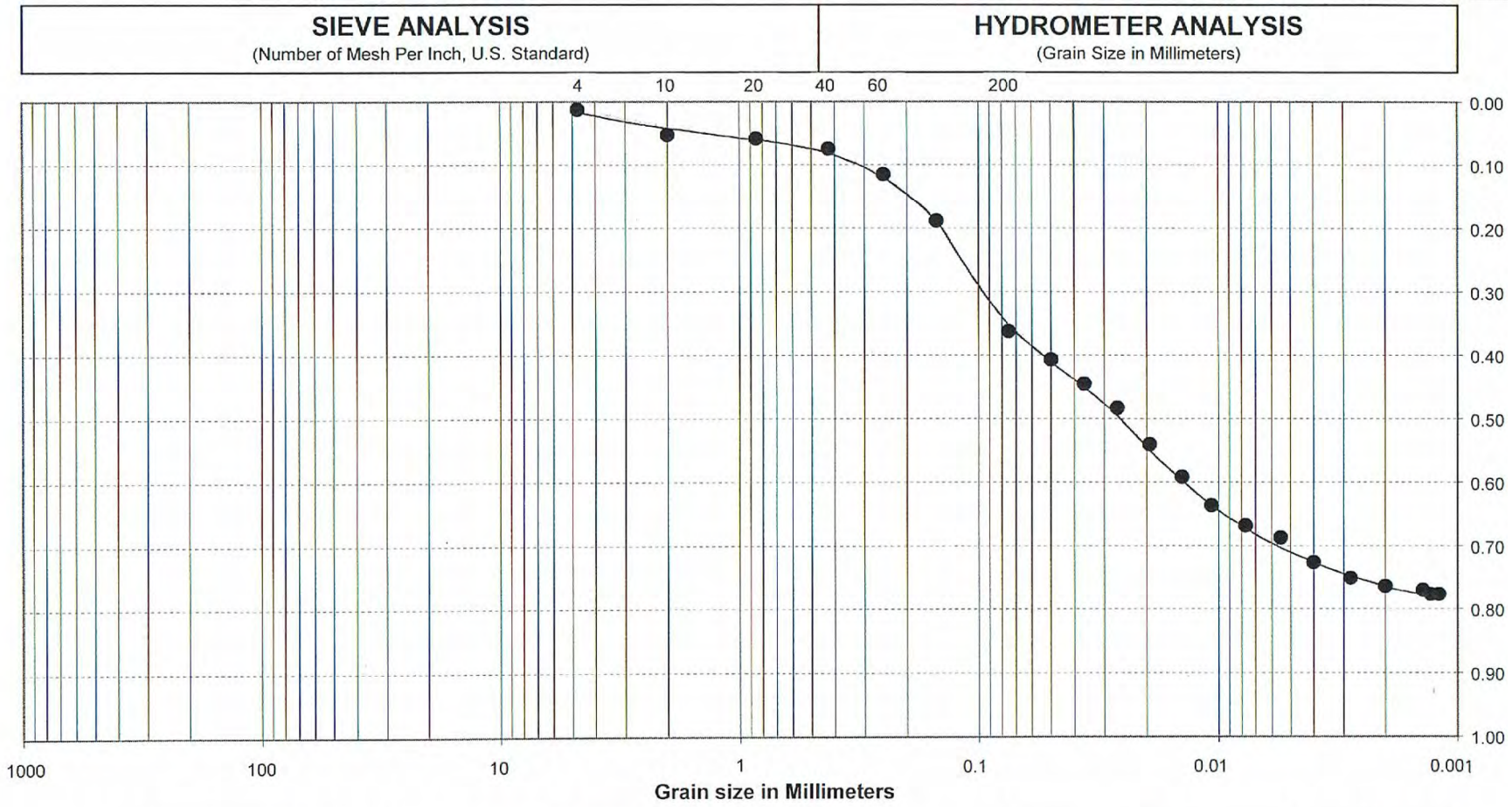
Date : 10-2011 | P.N. No.: CYG-11-6216

Sieve / Hydrometer Analysis

Boring	Depth (feet)	γ Field (pcf)	γ Saturate (pcf)	Fines (%)	D_{50} (mm)
GB-15	20	-- --	-- --	64	0.024

Classification : Olive brown clayey silty sand

Clay Content = 30 %



C. Y. GEOTECH, INC.

Geotechnical Engineering and Engineering Geology

GEI / Upper Newport Village

Date : 10-2011 | P.N. No.: CYG-11-6216

Sieve / Hydrometer Analysis

Boring	Depth (feet)	γ Field (pcf)	γ Saturate (pcf)	Fines (%)	D_{50} (mm)
GB-16	15	-- --	-- --	51	0.071

Classification : Yellowish brown clayey silty sand

Clay Content = 14 %

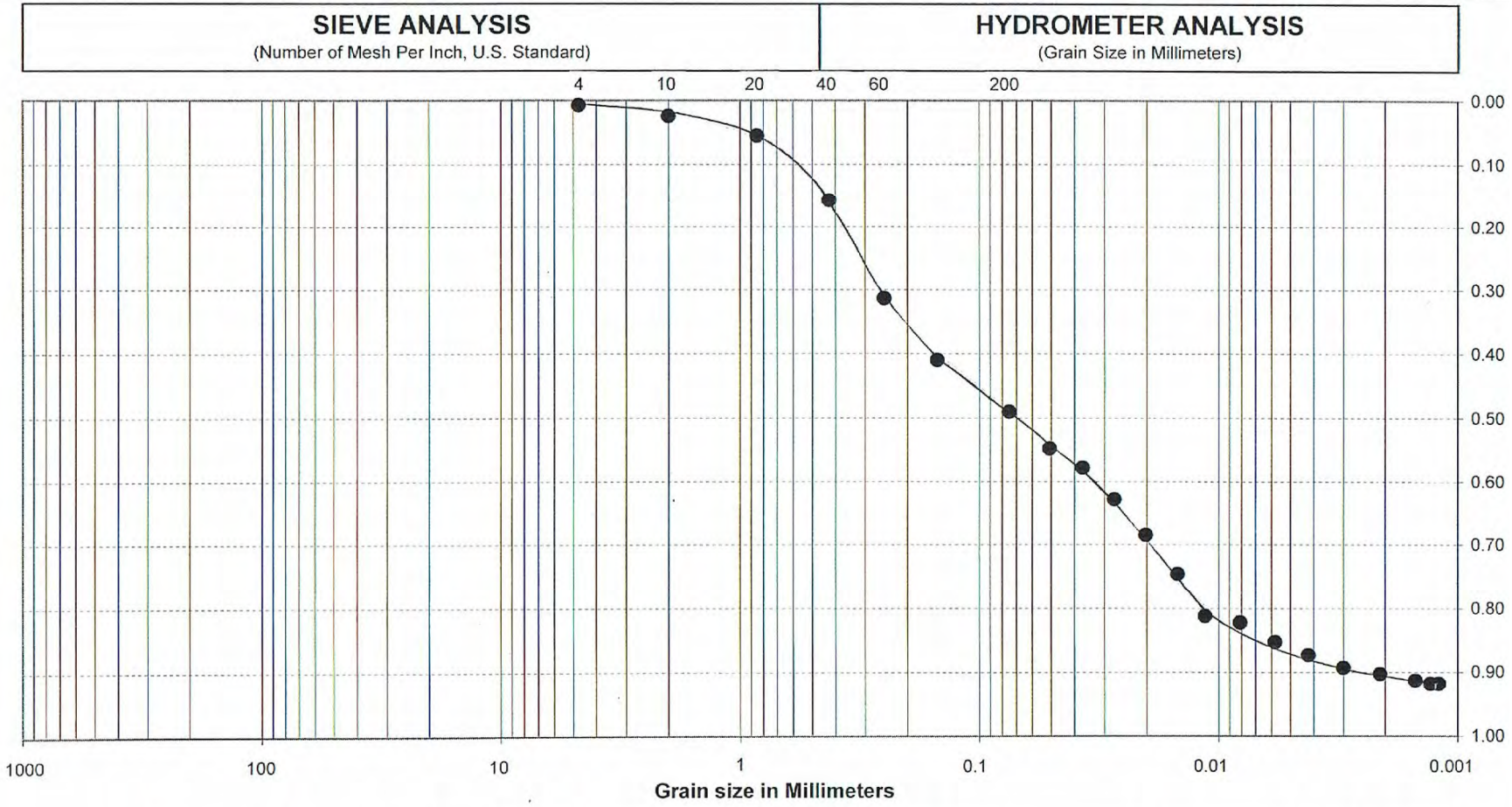


Plate GS - 15

APPENDIX V

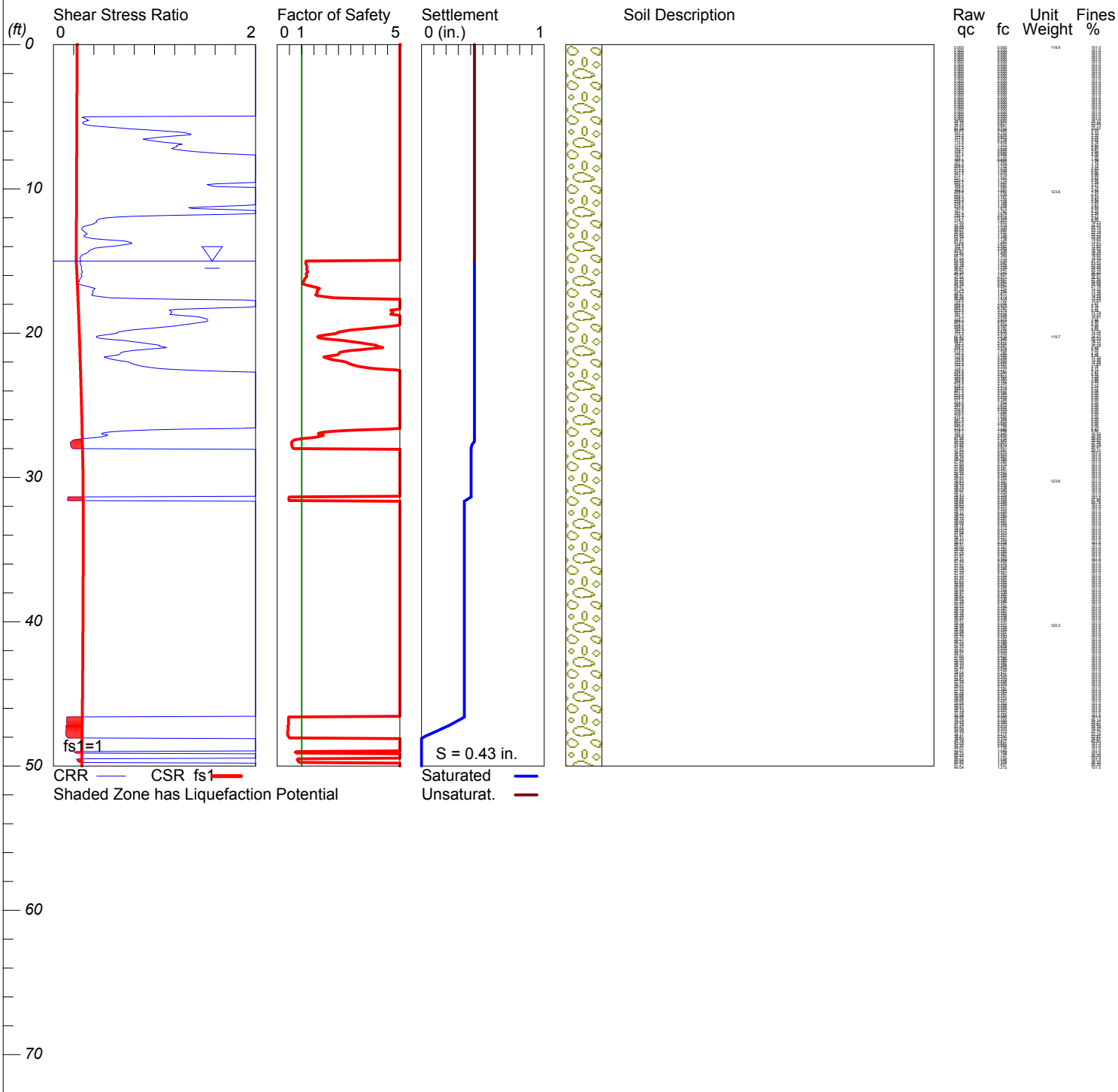
LIQUEFACTION ANALYSIS FOR GINTER & ASSOCIATES, INC.

LIQUEFACTION ANALYSIS

Uptown Newport Village, Newport Beach

Hole No.=CPT-1 Water Depth=15 ft

Magnitude=6.6
Acceleration=0.36g

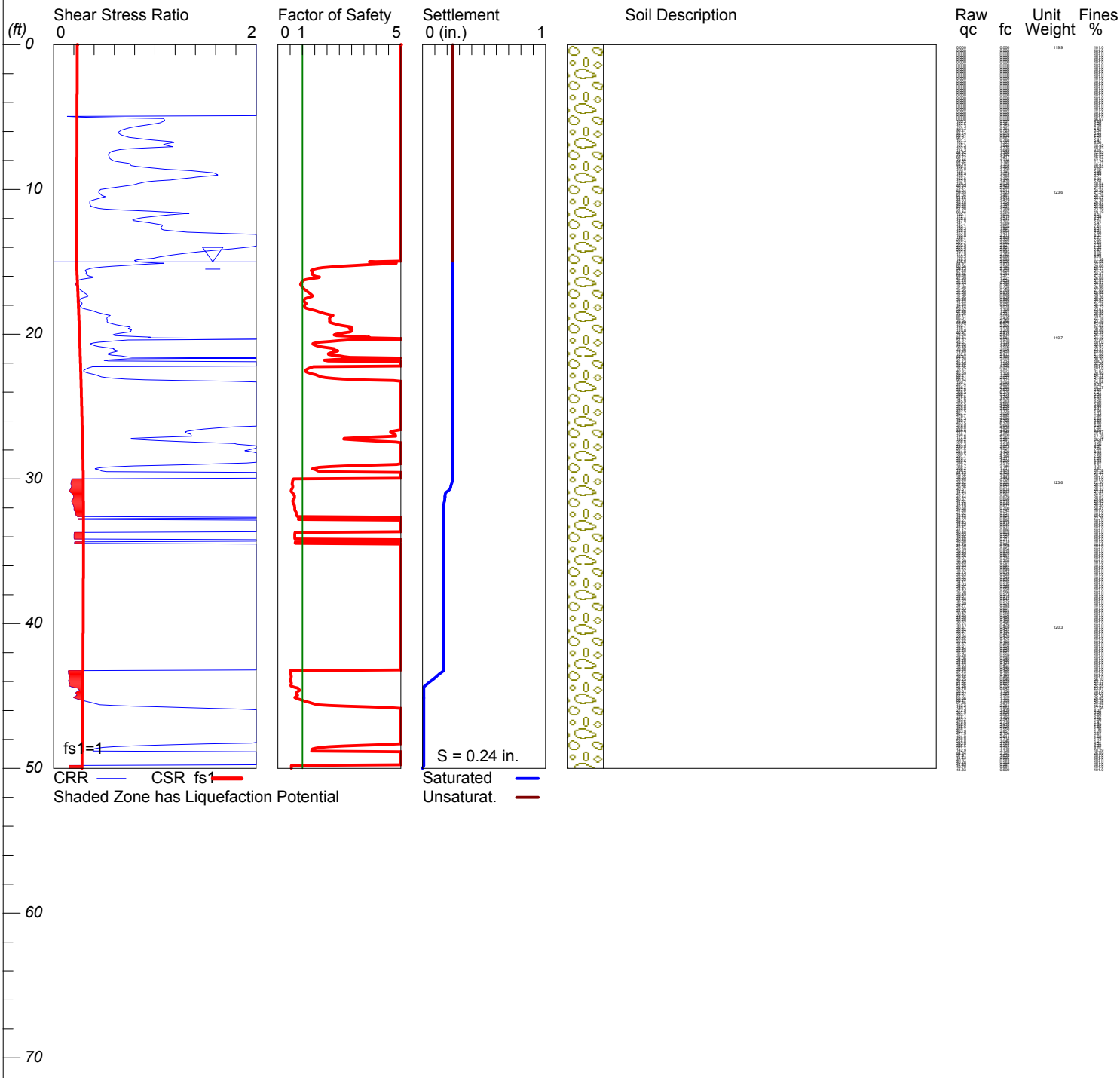


LIQUEFACTION ANALYSIS

Uptown Newport Village, Newport Beach

Hole No.=CPT-2 Water Depth=15 ft

Magnitude=6.6
Acceleration=0.36g

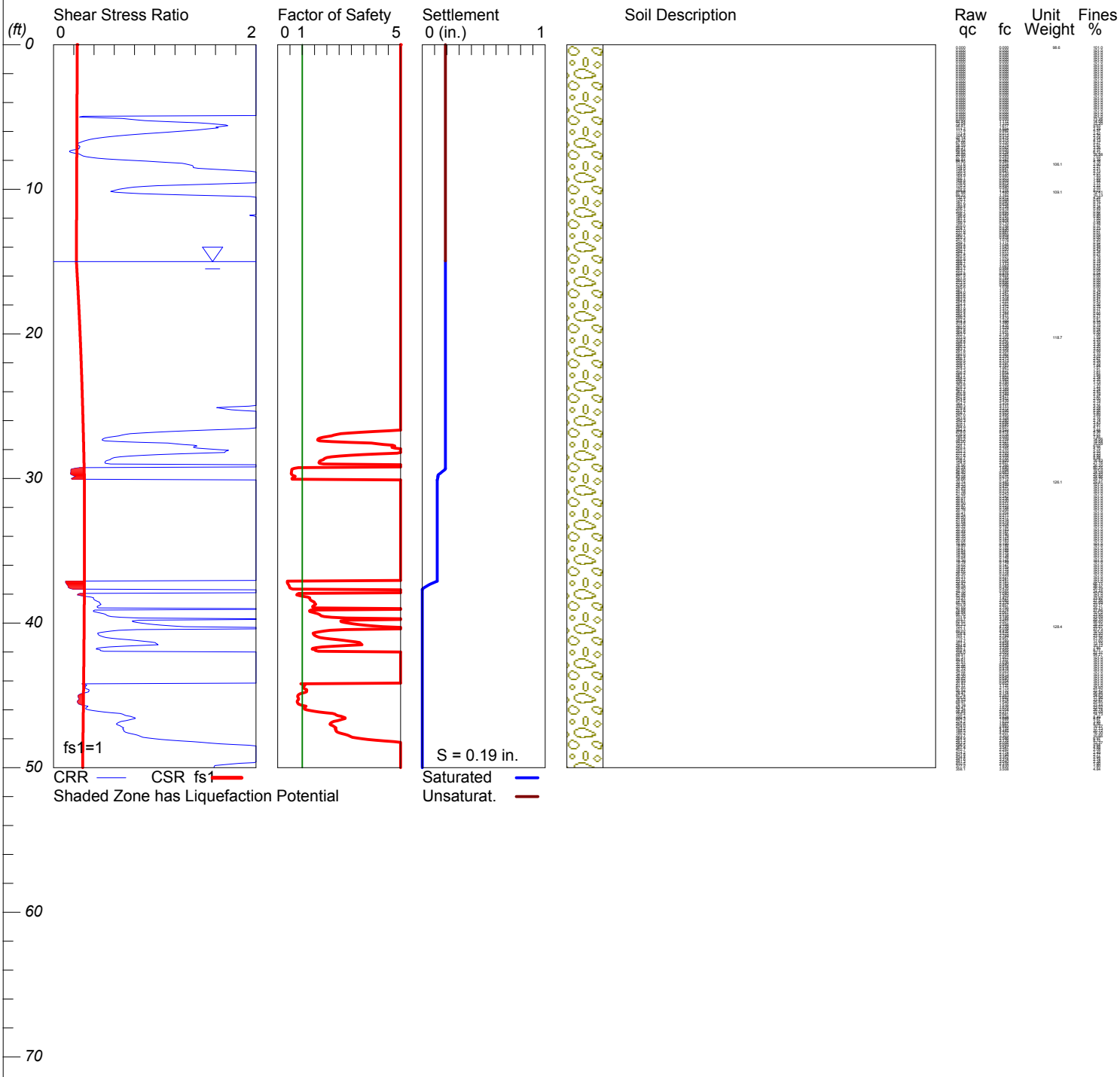


LIQUEFACTION ANALYSIS

Uptown Newport Village, Newport Beach

Hole No.=CPT-4 Water Depth=15 ft

Magnitude=6.6
Acceleration=0.36g

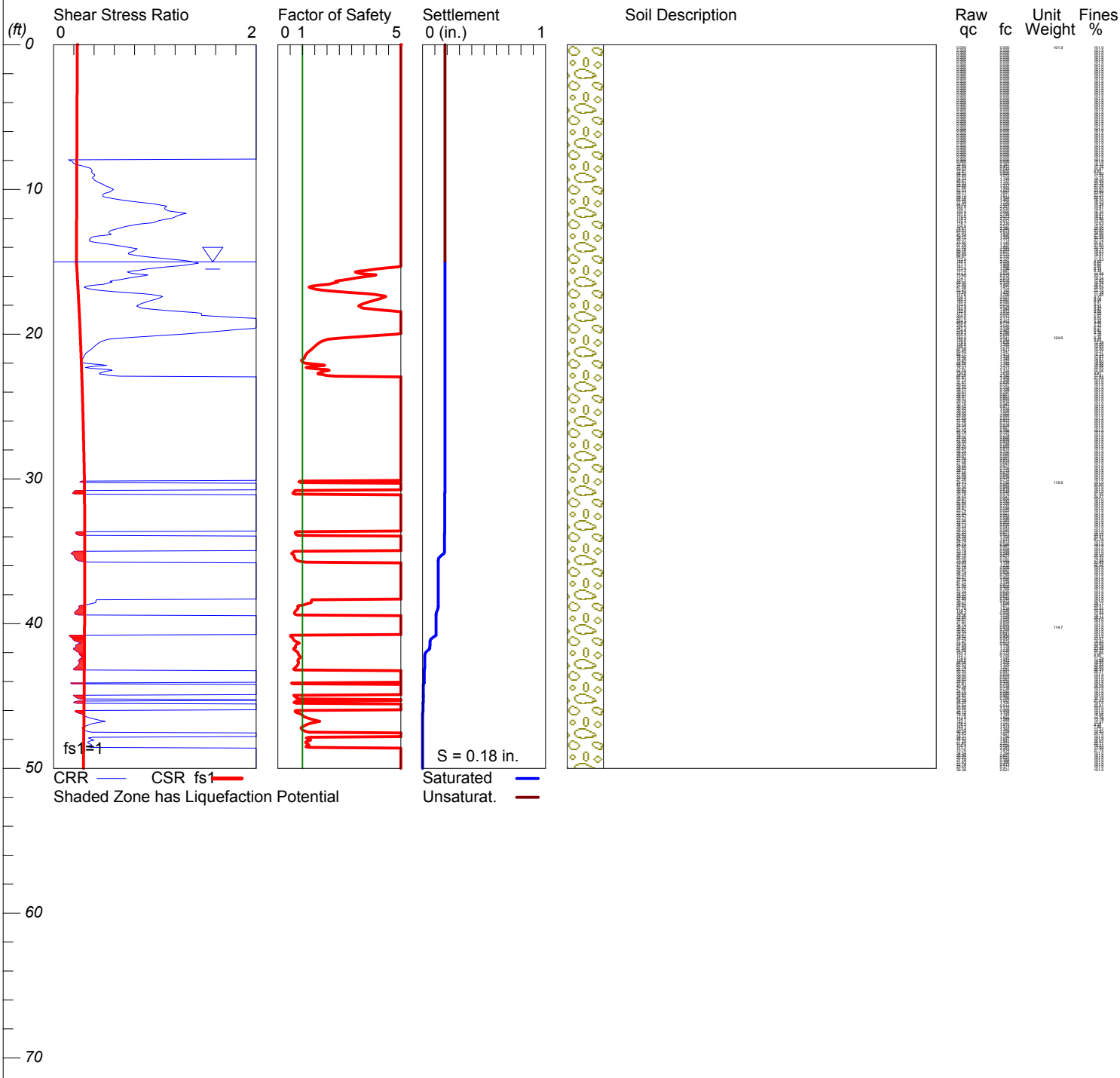


LIQUEFACTION ANALYSIS

Uptown Newport Village, Newport Village

Hole No.=CPT-8 ***Water Depth=15 ft***

Magnitude=6.6
Acceleration=0.36g



APPENDIX VI

BORING LOGS BY OTHERS

BORING B-1

DEPTH IN FEET	TESTS REPORTED ELSEWHERE	LABORATORY TEST DATA: ATTERBERG LIMITS – LIQUID LIMIT (%)	ATTERBERG LIMITS – PLASTICITY INDEX (%)	STRENGTH TEST DATA – TYPE OF TEST	STRENGTH TEST DATA – NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA – SHEAR STRENGTH (PSF)	STRENGTH TEST DATA – DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT SAMPLE TYPE	SYMBOL	DESCRIPTION
0								24	102	3 ■	CL	Dark brown silty fine sandy CLAY with trace organics (soft) [Fill]
5								29		24 ◪	CL	Brown to olive-gray and dark gray silty CLAY (very stiff)
10	-200 (39)							23		11 ■	SM	Brown and dark brown silty fine SAND (loose)
15								31		17 ◪	CL	Brown and olive-gray silty CLAY, mottled (stiff to very stiff)
20								23	103	17 ■		Grades brownish-gray with trace fine sand
25	-200 (22)							20 36		42 ◪		Grades with alternating gray silty fine sand and silty clay lenses
30								32	92	19 ■		Grades olive gray (medium stiff)
35	-200 (6)							22 39		39 ◪	SP SM	Gray fine to medium SAND with silt and shells (dense)
40								32	91	14 ■	CL	Brownish-gray with reddish-brown silty CLAY (medium stiff)
45	-200 (32)							21		94 ◪		Grades to gray silty clay with trace shell fragments
50								28	97	35 ■	SC	Gray fine to medium clayey SAND (very dense)
55												Grades with more clay and shells, less sand (medium dense)
60												

Boring completed to a depth of 51-1/2 feet on March 7, 1995.
Boring backfilled with cement/bentonite slurry upon completion.

LOG OF BORING

PROPOSED SEISMIC RETROFIT

BUILDINGS 503 & 505

For Rockwell International

Dames & Moore
PLATE 11

BORING B-2

DEPTH IN FEET	TESTS REPORTED ELSEWHERE	LABORATORY TEST DATA: ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT	SAMPLE TYPE
0											
	-200 (71)							21		8	
5	-200 (54)							16	117	9	
10	-200 (58)							16		19	
15	-200 (74)							21	107	19	
20	-200 (39)							21		25	
25								26	100	20	
30	-200 (9)							16		87	
35	-200 (3)							21	106	57	
40								45		16	
45								45	79	10	
50								38		17	
55											
60											

SYMBOL	DESCRIPTION
	5-inch thick concrete slab on 5-inch thick base
CL	Brown to dark brown and reddish-brown silty fine sandy CLAY (medium stiff to stiff) [Fill]
	Grades with AC fragments
CL	Brown to dark brown fine sandy silty CLAY (stiff to very stiff)
	Grades with some gravel and trace organics
	Grades to include light brown sand and clayey sand lenses
SP SM	Gray fine to coarse SAND with silt(very dense)
	Grades with less silt (dense)
CL	Olive-gray to gray silty CLAY with trace shell fragments

Boring completed to a depth of 51-1/2 feet on March 7, 1995
Boring backfilled with cement/bentonite slurry upon completion.

LOG OF BORING

PROPOSED SEISMIC RETROFIT
BUILDINGS 503 & 505

For Rockwell International

Dames & Moore
PLATE 12

BORING B-3

DEPTH IN FEET	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT SAMPLE TYPE	SYMBOL	DESCRIPTION
0											CL	5-inch thick asphaltic concrete pavement Brown to yellowish-brown fine to coarse sandy silty CLAY (medium stiff)
5								25	100	14 ■		
10								22		32 ◪		Grades (very stiff)
15	-200 (65)							19	110	22 ■	ML	Olive-gray to yellowish-brown fine sandy SILT (medium dense)
20	-200 (92)							32		25 ◪		Grades with trace clay
25	-200 (61)							31	92	18 ■		
30								35		26 ◪	CL	Olive-gray and brown silty CLAY with yellowish staining (very stiff)
35	-200 (78)							27	100	5 ■		Grades (soft)
40								39		21 ◪		Grades olive-gray with more silt and iron staining (medium stiff to very stiff)
45								43	82	11 ■		
50	-200 (48)							24		35 ◪	SC	Gray clayey fine SAND (dense)
55												Boring completed to a depth of 51-1/2 feet on March 8, 1995. Boring backfilled with a cement/bentonite slurry upon completion.
60												

LABORATORY TEST DATA

LOG OF BORING

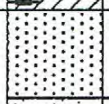
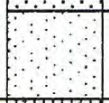
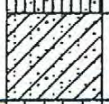
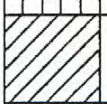
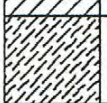
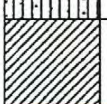
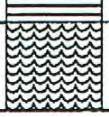
PROPOSED SEISMIC RETROFIT

BUILDINGS 503 & 505

For Rockwell International

Dames & Moore
PLATE 13

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			SYMBOL		DESCRIPTION
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON No. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN No. 200 SIEVE	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING No. 4 SIEVE	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50			ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASCITITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN No. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE CLASSIFICATIONS

Dames & Moore
PLATE 14

KEY TO LOG OF BORINGS

SAMPLE TYPES

30 ■ INDICATES HAMMER BLOWS PER FOOT OF PENETRATION
INDICATES DAMES & MOORE TYPE U SAMPLE

◪ STANDARD PENETRATION TEST

☒ INDICATES DISTURBED OR BULK SAMPLE

DAMES & MOORE TYPE U SAMPLER
DRIVEN TYPICALLY 18 INCHES
DROPPING A 380-POUND HAMMER 18-INCHES.

LABORATORY TESTS

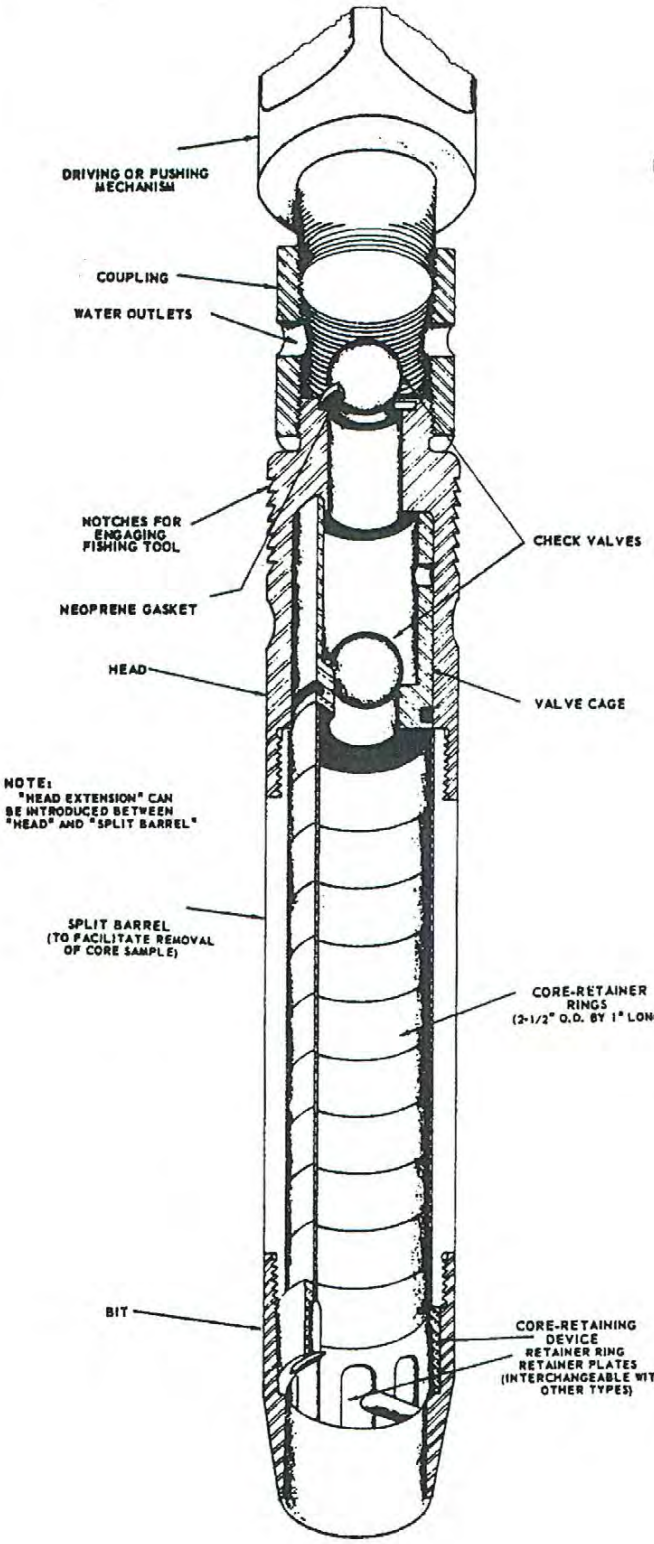
-200 Percent passing the No. 200 Sieve
(Test Results in Parentheses)

PROPOSED SEISMIC RETROFIT
BUILDING 503 & 505
For Rockwell International

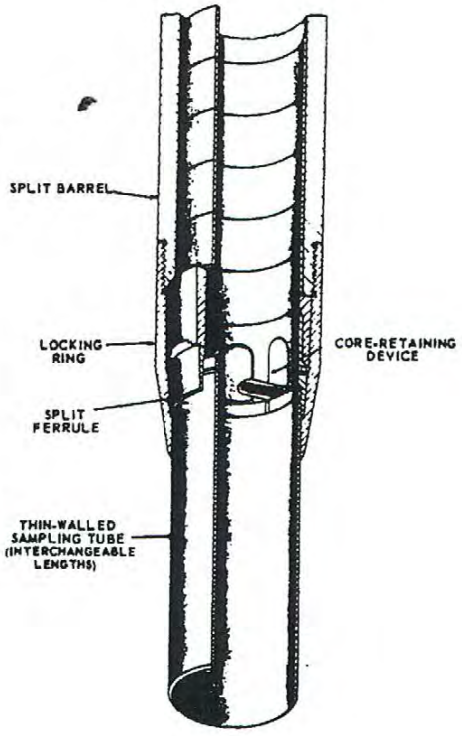
Dames & Moore
PLATE 14 - CONTINUED

SOIL SAMPLER TYPE U

FOR SOILS DIFFICULT TO RETAIN IN SAMPLER

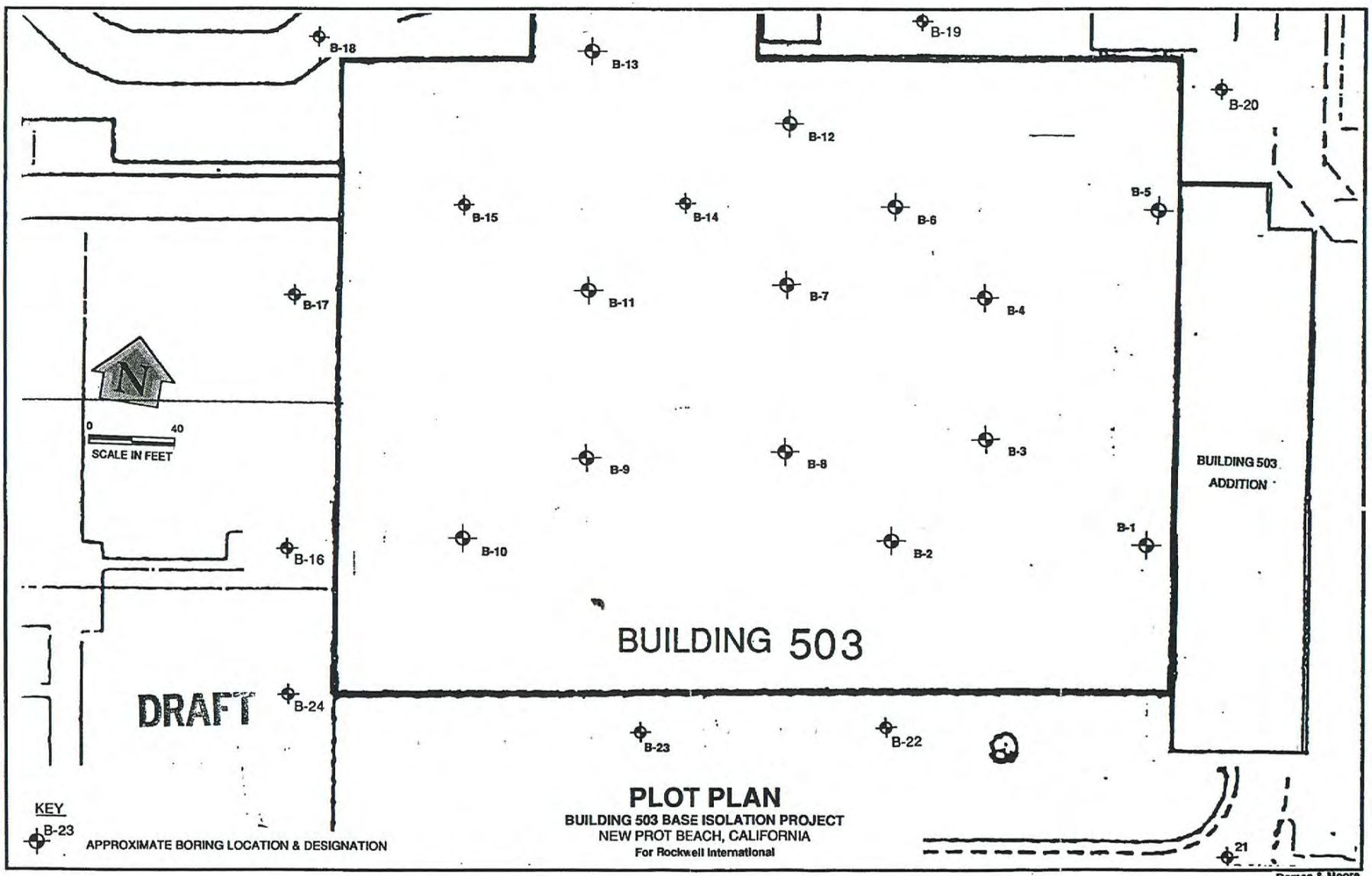


ALTERNATE ATTACHMENTS



Dames & Moore
PLATE 10

(89-6174)



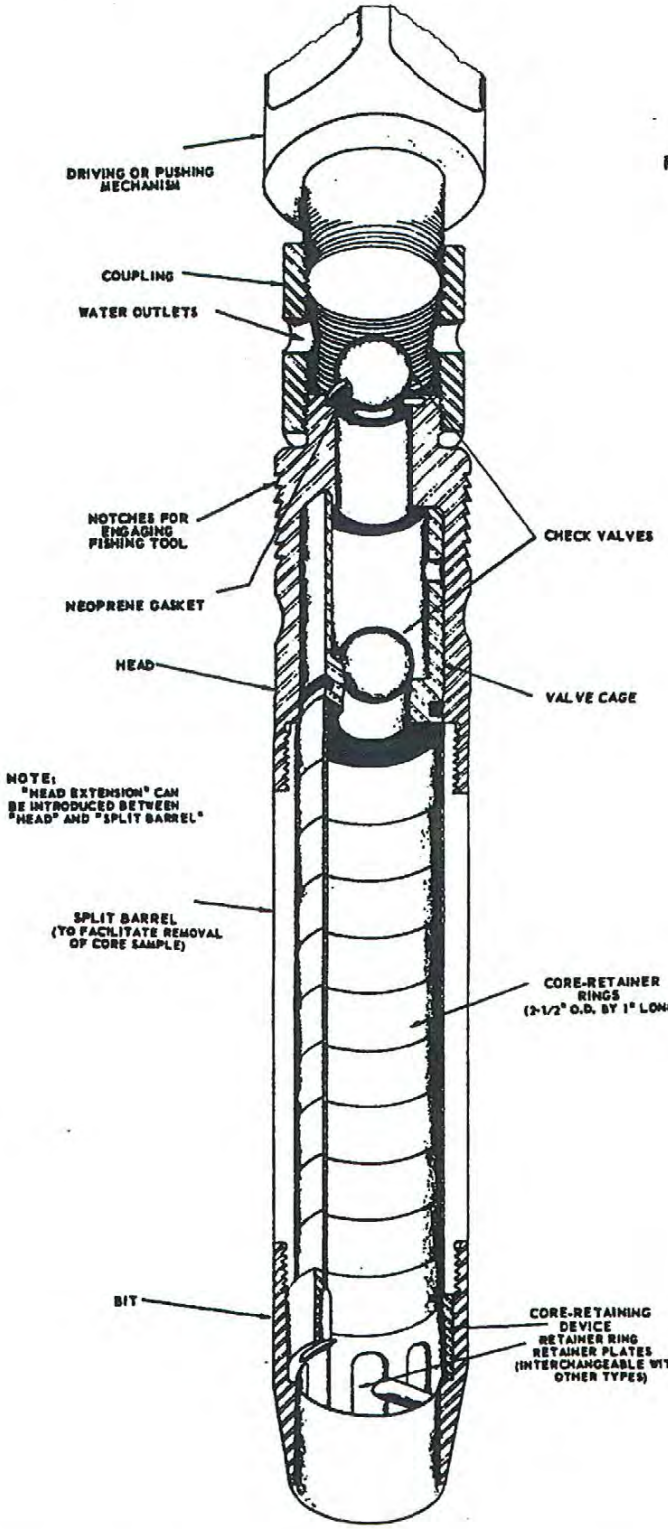
PLOT PLAN

BUILDING 503 BASE ISOLATION PROJECT
NEW PROT BEACH, CALIFORNIA
For Rockwell International

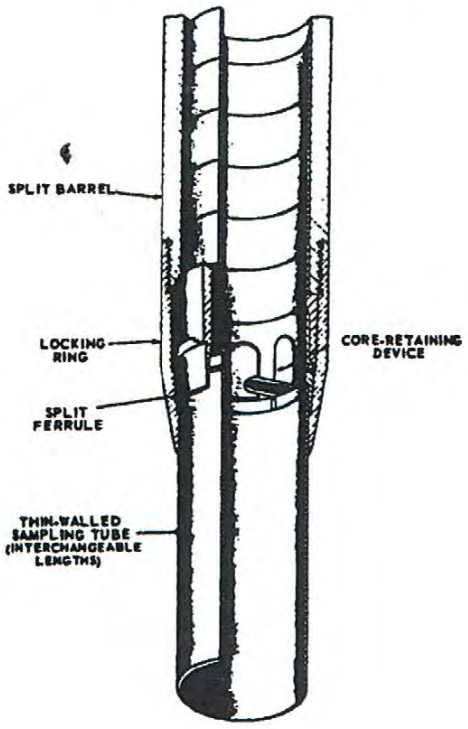
Dames & Moore
PLATE 2

SOIL SAMPLER TYPE U

FOR SOILS DIFFICULT TO RETAIN IN SAMPLER



ALTERNATE ATTACHMENTS



Dames & Moore
PLATE 3

417.5 (8-68)

BORING B-1

ELEVATION: +100.0 Feet (Rockwell Datum)

DEPTH IN FEET	LABORATORY TEST DATA: TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT	SAMPLE TYPE	SYMBOL	DESCRIPTION
0													8.5-inch thick CONCRETE slab
													39.5-inch thick LIME STABILIZED SOIL
5	-200 (82) TXCU	46	29					21	106	22		CL	Mottled dark gray and dark brown silty CLAY with lenses of grayish-brown sandy silt (stiff) [FILL]
10	CON							15	118	27			Grades dark brown without sandy silt lenses
15	-200 (27)							15	122	80 /6"		SC	Brown silty clayey fine SAND with trace organics (hard)
20													
25													
30													
35													
40													

NOTES:
1. Boring drilled using a limited access hollow-stem auger drilling rig.
2. Boring completed to a depth of 16.5 feet on September 27, 1996.
3. No groundwater encountered.
4. Boring backfilled with bentonite chips and capped with concrete upon completion.

DRAFT

LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 4

BORING B- 2

ELEVATION: +100.0 Feet (Rockwell Datum)

DEPTH IN FEET	LABORATORY TEST DATA: TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT SAMPLE TYPE	SYMBOL	DESCRIPTION
0												8-inch thick CONCRETE slab 6-inch thick AGGREGATE BASE 34-inch thick LIME STABILIZED SOIL
5								22	103	35	CL	Mottled dark brown and brown silty CLAY with trace sand (very stiff) [FILL]
				UC		2293		21	104	44		Grades with seams of tan fine to coarse sandy clay
10	-200 (90)							16	99	78	ML	Brown to brownish-yellow fine sandy SILT (hard)
	-200 (23)							24	97	118	SM SC	Brown clayey silty fine SAND (very dense)
15								27	95	52	CL	Brown silty CLAY with trace sand (very stiff)
20												
25												
30												
35												
40												

NOTES:
1. Boring drilled using a limited access hollow-stem auger drilling rig.
2. Boring completed to a depth of 16.5 feet on September 28, 1996.
3. No groundwater encountered.
4. Boring backfilled with bentonite chips and capped with concrete upon completion.

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LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA
For Rockwell International, Inc.

Dames & Moore
PLATE 5

BORING B-3

ELEVATION: +100.0 Feet (Rockwell Datum)

DEPTH IN FEET	LABORATORY TEST DATA: TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT	SAMPLE TYPE	SYMBOL	DESCRIPTION
0													8.5-inch thick CONCRETE slab 6-inch thick AGGREGATE BASE 34-inch thick LIME STABILIZED SOIL
5		43	26					22 23	103 104	51 47		CL	Mottled dark brown and brown silty CLAY with trace sand (very stiff) [FILL] Grades dark brown with less sand
10	CON TXCU							22 21	107 107	47 46			Grades mottled dark brown and brown with trace sand
15								20	109	101			Grades grayish-brown with seams of white very fine sandy silt and trace iron staining (hard)
20													
25													
30													
35													
40													

NOTES:
1. Boring drilled using a limited access hollow-stem auger drilling rig.
2. Boring completed to a depth of 16.5 feet on September 28, 1996.
3. No groundwater encountered.
4. Boring backfilled with bentonite chips and capped with concrete upon completion.

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LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA
For Rockwell International, Inc.

Dames & Moore
PLATE 6

BORING B-4

ELEVATION: +100.0 Feet (Rockwell Datum)

DEPTH IN FEET	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT	SAMPLE TYPE	SYMBOL	DESCRIPTION
0													8-inch thick CONCRETE slab; 6-inch thick AGGREGATE BASE; 34-inch thick LIME STABILIZED SOIL
5								18	109	40		CL	Mottled dark brown and brown silty CLAY (very stiff) [FILL]
								18	105	47			Grades with trace sand (hard)
10				UC		4868		17	108	49			
	-200 (74)							16	85	55			Grades dark brown with more sand, some silt and trace gravel and organics
15								16	114	97		CL	Reddish-brown silty fine sandy CLAY (hard)
20													
25													
30													
35													
40													

NOTES:
1. Boring drilled manually using hand-auger equipment.
2. Boring completed to a depth of 16.5 feet on September 28, 1996.
3. No groundwater encountered.
4. Boring backfilled with bentonite chips and capped with concrete upon completion.

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LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 7

BORING B- 5

ELEVATION: +100.0 Feet (Rockwell Datum)

DEPTH IN FEET	LABORATORY TEST DATA: TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT	SAMPLE TYPE
0											
5								19	109		
								19	110	56	
10								20	101	61	
	CON -200 (44)			UC		2952		15	111	38	
15								14	121	87	
20											
25											
30											
35											
40											

SYMBOL	DESCRIPTION
	8-inch thick CONCRETE slab
	6-inch thick AGGREGATE BASE
	34-inch thick LIME STABILIZED SOIL
CL	Mottled dark brown and brown silty CLAY with trace sand (very stiff) [FILL]
SM SC	Mottled dark brown and brown clayey fine to coarse SAND with silt and trace gravel and organics (medium dense) [FILL]
CL	Reddish-brown fine to coarse sandy CLAY with trace gravel (hard)

NOTES:
1. Boring drilled manually using hand-auger equipment.
2. Boring completed to a depth of 16.5 feet on September 28, 1996.
3. No groundwater encountered.
4. Boring backfilled with bentonite chips and capped with concrete upon completion.

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LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 8

BORING B- 6

ELEVATION: +100.0 Feet (Rockwell Datum)

DEPTH IN FEET	TESTS REPORTED ELSEWHERE	LABORATORY TEST DATA: ATTERBERG LIMITS – LIQUID LIMIT (%)	ATTERBERG LIMITS – PLASTICITY INDEX (%)	STRENGTH TEST DATA – TYPE OF TEST	STRENGTH TEST DATA – NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA – SHEAR STRENGTH (PSF)	STRENGTH TEST DATA – DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT	SAMPLE TYPE	SYMBOL	DESCRIPTION
0													7-inch thick CONCRETE slab 4-inch thick AGGREGATE BASE 37-inch thick LIME STABILIZED SOIL
5	-200 (88)							16	113	57		CL	Mottled dark brown and brown silty CLAY with some sand (very stiff) [FILL]
								17	112	50			
10		44	18					18	111	69			Grades dark brown
	-200 (16)							16	116	56 /6"		SC	Mottled dark brown and brown clayey fine to coarse SAND (dense) [FILL]
												CL	Mottled dark brown and brown silty CLAY with some sand (hard) [FILL]
15	-200 (27)							17	105	44		SM	Mottled dark brown and brown silty fine to coarse SAND with some clay (medium dense)
20													
25													
30													
35													
40													

NOTES:

1. Boring drilled manually using hand-auger equipment.
2. Boring completed to a depth of 16.5 feet on September 28, 1996.
3. No groundwater encountered.
4. Boring backfilled with bentonite chips and capped with concrete upon completion.

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LOG OF BORING

ROCKWELL BUILDING 503

NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore

PLATE 9

BORING B- 7

ELEVATION: +100.0 Feet (Rockwell Datum)

DEPTH IN FEET	LABORATORY TEST DATA									BLOWS/FOOT SAMPLE TYPE
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TESTS: TYPE OF TEST	STRENGTH TESTS: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TESTS: SHEAR STRENGTH (PSF)	PERCENT PASSING A # 200 SIEVE	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	
0										
5										
10										
15										
20										
25										
30										
35										
40										

SYMBOL	DESCRIPTION
	8-inch thick CONCRETE slab
	6-inch thick AGGREGATE BASE
	34-inch thick LIME STABILIZED SOIL
	Encountered subsurface utility

NOTES:

1. Boring pre-drilled using a concrete coring machine.
2. Boring terminated at a depth of 4 feet on September 29, 1996 due to presence of an underground utility.
3. No groundwater encountered.
4. Boring backfilled with bentonite chips and capped with concrete upon completion.

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LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 10

BORING B-8

ELEVATION: +100.0 Feet (Rockwell Datum)

DEPTH IN FEET	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT SAMPLE TYPE	SYMBOL	DESCRIPTION
0												8-inch thick CONCRETE slab 6-inch thick AGGREGATE BASE SEE NOTE (NO. 5) 34-inch thick LIME STABILIZED SOIL
5								28	102	31	CL	Mottled dark brown and brown silty CLAY (very stiff) [FILL]
								19	99	27	ML CL	Brownish-yellow clayey SILT to silty CLAY with some sand (stiff) [FILL]
10								22	97		ML	Brownish-yellow fine sandy SILT with trace clay (very stiff)
15										42 73	CL	Brownish-yellow silty CLAY with trace sand (hard)
20												
25												
30												
35												
40												

NOTES:
1. Boring drilled manually using hand-auger equipment.
2. Boring completed to a depth of 16.5 feet on September 29, 1996.
3. No groundwater encountered.
4. Boring backfilled with bentonite chips and capped with concrete upon completion.
5. Water running in hole through soil to a depth of 1 foot.

LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 11

BORING B- 9

ELEVATION: +100.0 Feet (Rockwell Datum)

DEPTH IN FEET	TESTS REPORTED ELSEWHERE	LABORATORY TEST DATA: ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT SAMPLE TYPE
0										
5								26		55
										80 /6"
10	-200 (55) TXCU							29	94	75
										67
15										83
20										
25										
30										
35										
40										

SYMBOL	DESCRIPTION
	8.5-inch thick CONCRETE slab
	4-inch thick AGGREGATE BASE
	35.5-inch thick LIME STABILIZED SOIL
CL	*Mottled brown and brownish-yellow silty CLAY with* seams of white clayey silt (very stiff) [POSSIBLE FILL]
	Grades brownish-yellow with trace sand and gravel
ML	Brownish-yellow fine sandy SILT with trace clay (hard)
	Grades with trace iron staining

NOTES:
1. Boring drilled manually using hand-auger equipment.
2. Boring completed to a depth of 16.5 feet on September 29, 1996.
3. No groundwater encountered.
4. Boring backfilled with bentonite chips and capped with concrete upon completion.

DRAFT

LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 12

BORING B-10

ELEVATION: +100.0 Feet (Rockwell Datum)

DEPTH IN FEET	LABORATORY TEST DATA: TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT	SAMPLE TYPE	SYMBOL	DESCRIPTION
0													8-inch thick CONCRETE slab 4-inch thick AGGREGATE BASE 36-inch thick LIME STABILIZED SOIL
5								25	98	53		CL	Mottled dark brown and brown silty CLAY with seams of white clayey silt (very stiff) [FILL]
	-200 (69)	59	30					23	99	39		CH	Mottled brown and brownish-yellow CLAY with some sand and silt (hard)
10								20	102	87		ML	Brown very fine to fine sandy SILT with trace clay (hard)
	-200 (46)							17	95	36		SM SC	Brown silty clayey SAND (medium dense)
15								28	96	31		CL	Mottled brown and brownish-yellow silty CLAY (very stiff)
20													
25													
30													
35													
40													

NOTES:
1. Boring drilled manually using hand-auger equipment.
2. Boring completed to a depth of 16.5 feet on September 29, 1996.
3. No groundwater encountered.
4. Boring backfilled with bentonite chips and capped with concrete upon completion.

DRAFT

LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 13

BORING B-11

ELEVATION: +100.0 Feet (Rockwell Datum)

DEPTH IN FEET	TESTS REPORTED ELSEWHERE	LABORATORY TEST DATA: ATTERBERG LIMITS – LIQUID LIMIT (%)	ATTERBERG LIMITS – PLASTICITY INDEX (%)	STRENGTH TEST DATA – TYPE OF TEST	STRENGTH TEST DATA – NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA – SHEAR STRENGTH (PSF)	STRENGTH TEST DATA – DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT	SAMPLE TYPE
0											
5	TXCU							26	99	53	
								19	111	28	
10				UC		3989				75	
		51	28					22	101	90	
15	CON							18	100	34	
20											
25											
30											
35											
40											

SYMBOL	DESCRIPTION
	8.5-inch thick CONCRETE slab
	4-inch thick AGGREGATE BASE
	35.5-inch thick LIME STABILIZED SOIL
CL	Mottled dark brown and brown silty CLAY (very stiff) [FILL]
	Grades (stiff)
	Grades with trace sand (very stiff)
CH	Brown CLAY with seams of white silty clay (hard)
ML	Mottled brown and brownish-yellow clayey SILT with trace sand (very stiff)
	Grades mottled brown and brownish-yellow

NOTES:
1. Boring drilled manually using hand-auger equipment.
2. Boring completed to a depth of 16.5 feet on September 28, 1996.
3. No groundwater encountered.
4. Boring backfilled with bentonite chips and capped with concrete upon completion.

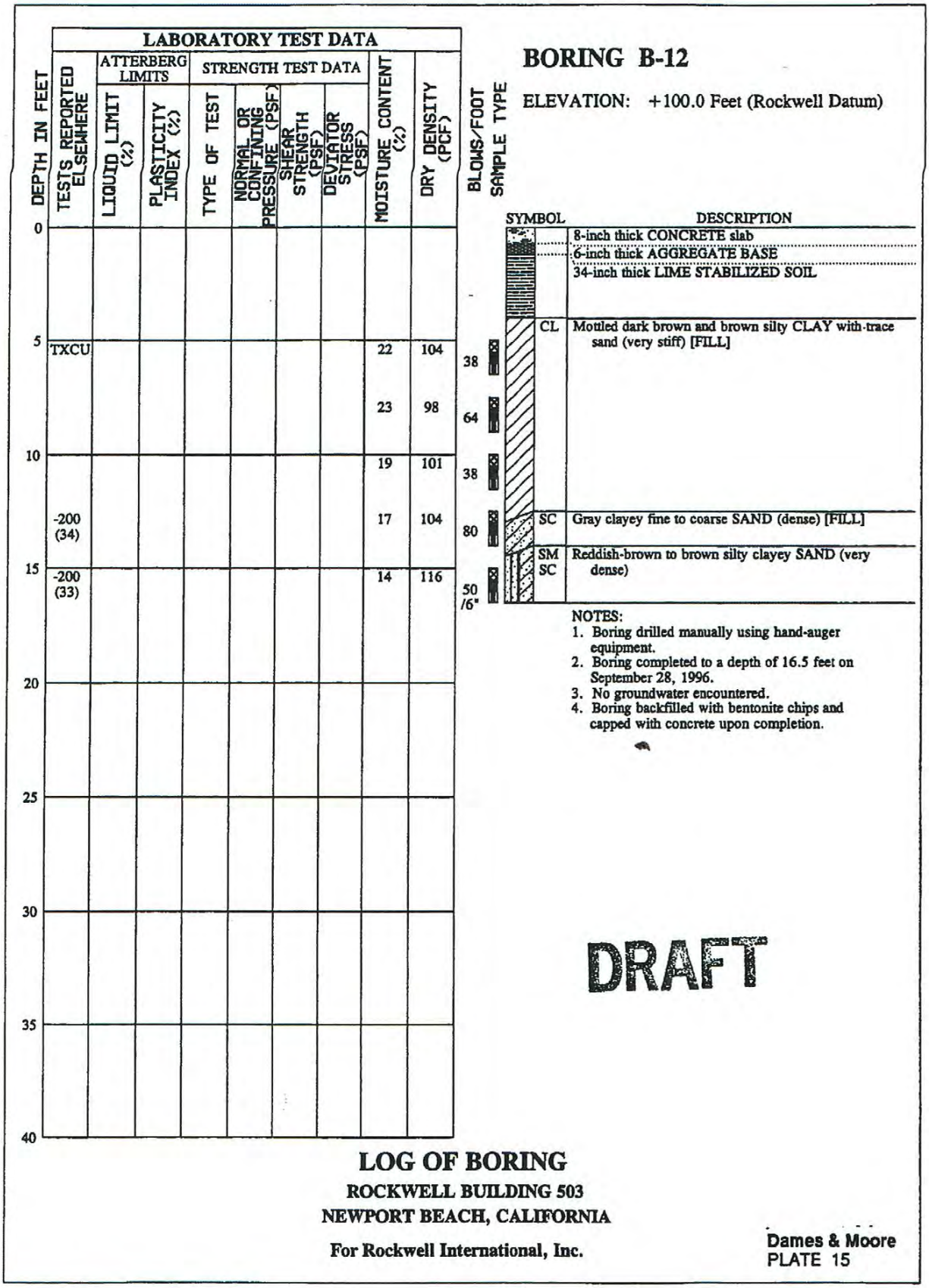
DRAFT

LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 14



LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 15

BORING B-13

ELEVATION: +100.0 Feet (Rockwell Datum)

DEPTH IN FEET	LABORATORY TEST DATA: TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT SAMPLE TYPE	SYMBOL	DESCRIPTION
0												8-inch thick CONCRETE slab 4-inch thick AGGREGATE BASE 36-inch thick LIME STABILIZED SOIL
5				UC		1382		19	106	29	CL	Mottled dark brown and brown silty CLAY (stiff) [FILL]
								19	106	19		Grades with trace sand (stiff)
10	-200 (39)							18	112	69	SC	Gray clayey fine to coarse SAND (dense) [FILL] Very wet
								12	121	76	CL	Mottled dark brown and brown silty CLAY (hard) [FILL]
15								18	111	85	CL	Reddish-brown to brown sandy silty CLAY (hard)
20												
25												
30												
35												
40												

NOTES:
1. Boring drilled manually using hand-auger equipment.
2. Boring completed to a depth of 16.5 feet on September 29, 1996.
3. No groundwater encountered.
4. Boring backfilled with bentonite chips and capped with concrete upon completion.

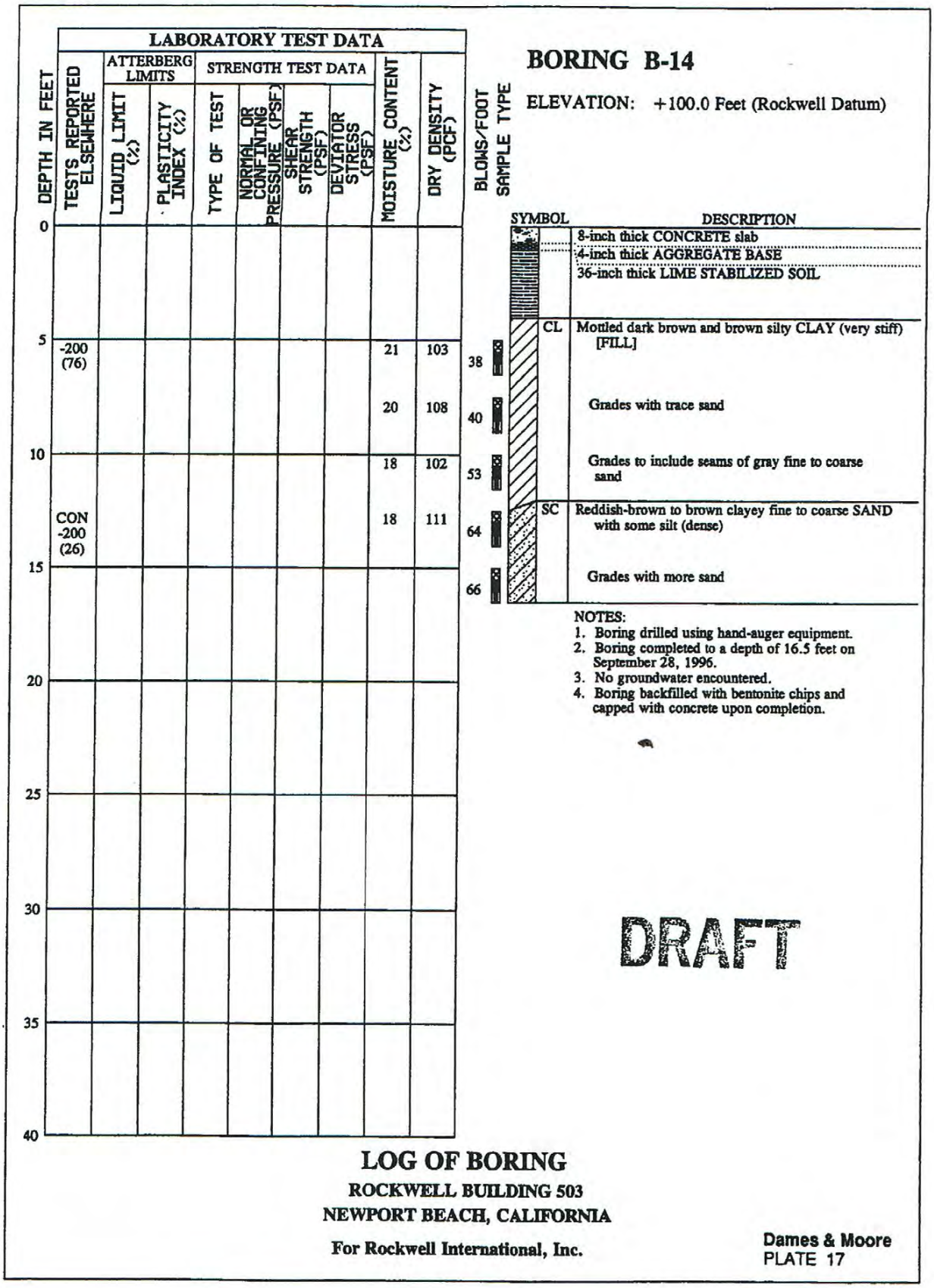
DRAFT

LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 16



LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 17

BORING B-15

ELEVATION: +100.0 Feet (Rockwell Datum)

DEPTH IN FEET	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT	SAMPLE TYPE	SYMBOL	DESCRIPTION
0													8-inch thick CONCRETE slab 4-inch thick AGGREGATE BASE 36-inch thick LIME STABILIZED SOIL
5		47	26					24	96	62		CL	Mottled dark brown and brown silty CLAY with trace sand (hard) [FILL]
								20	105	89			Grades to include seams of olive-gray silty fine to medium sand
10	-200 (77)							16	112	58			Grades without seams of silty sand (very stiff)
	-200 (50)							12	120	105		ML	Reddish-brown to brown sandy clayey SILT (hard)
15	-200 (55)							13	119	120			Grades with more sand and less clay
20													
25													
30													
35													
40													

NOTES:
1. Boring drilled using hand-auger equipment.
2. Boring completed to a depth of 16.5 feet on September 28, 1996.
3. No groundwater encountered.
4. Boring backfilled with bentonite chips and capped with concrete upon completion.

DRAFT

LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 18

BORING B-16

ELEVATION: +99.5 Feet (Rockwell Datum)

DEPTH IN FEET	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT SAMPLE TYPE	SYMBOL	DESCRIPTION
0											CL	Reddish-brown fine sandy silty CLAY (stiff)
5								15	119	140 ■		
10								23	102	70 ■	ML	Brownish-yellow to brown fine sandy SILT with trace clay (stiff)
15								11	104	170 ■	SM	Dark brown to brown silty fine to medium SAND (dense)
20												
25												
30												
35												
40												

NOTES:
1. Boring drilled manually using hand-auger equipment.
2. Boring completed to a depth of 15.5 feet on October 13, 1996.
3. No groundwater encountered.
4. Boring backfilled with Volclay grout upon completion.

DRAFT

LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 19

BORING B-17

ELEVATION: +99.5 Feet (Rockwell Datum)

DEPTH IN FEET	LABORATORY TEST DATA: TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT SAMPLE TYPE
0										
5								16	105	■
10								9	98	■
15								19	102	■
20										
25										
30										
35										
40										

SYMBOL	DESCRIPTION
CL	Dark brown fine sandy silty CLAY with trace gravel (stiff)
SM ML	Brownish-yellow to brown silty fine SAND to fine sandy SILT (dense)
CL	Mottled brownish-yellow and brown silty CLAY (stiff)

NOTES:
1. Boring drilled using hand-auger equipment.
2. Boring completed to a depth of 15.5 feet on October 13, 1996.
3. No groundwater encountered.
4. Boring backfilled with Volclay grout upon completion.

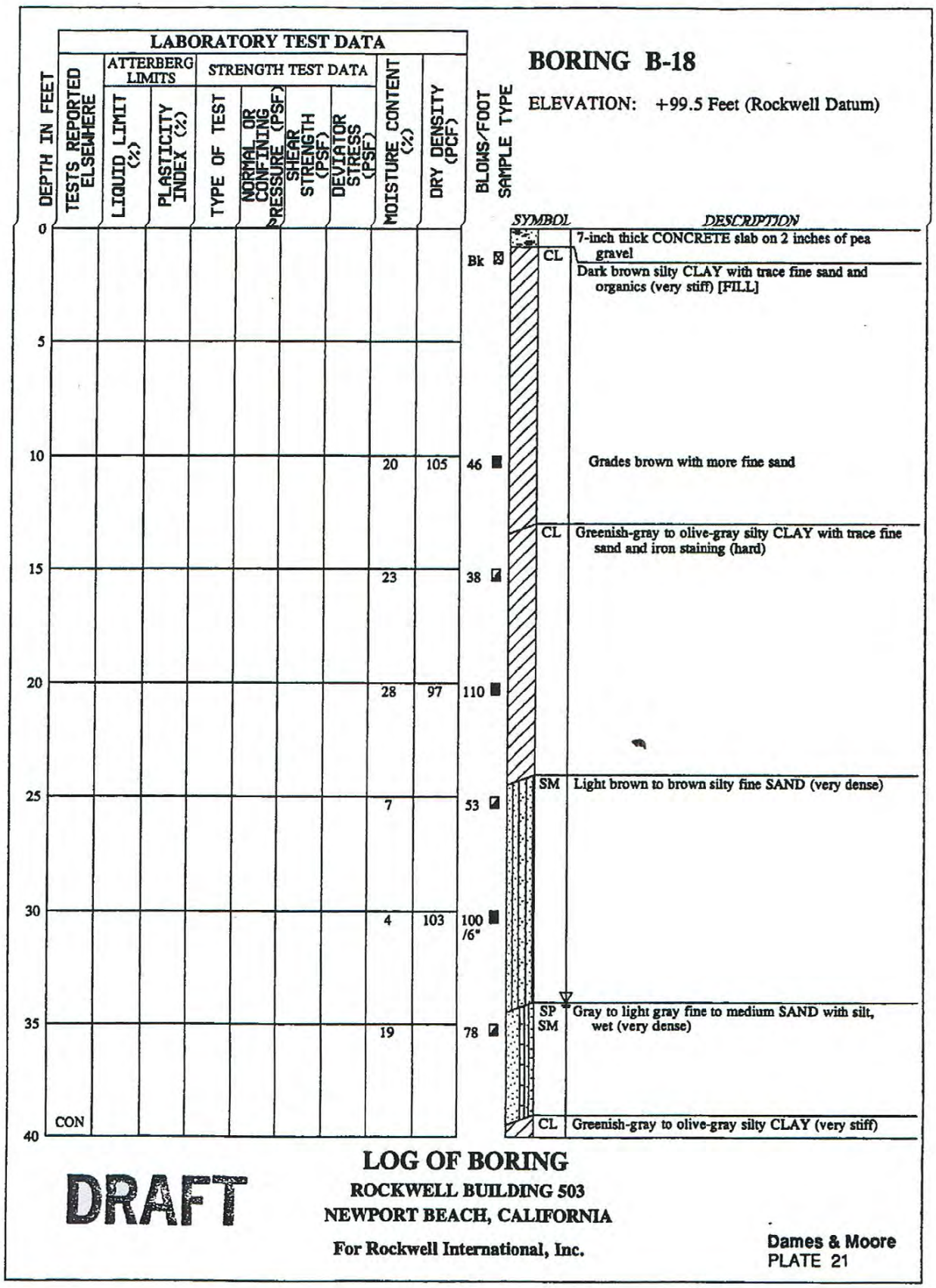
DRAFT

LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 20



DRAFT

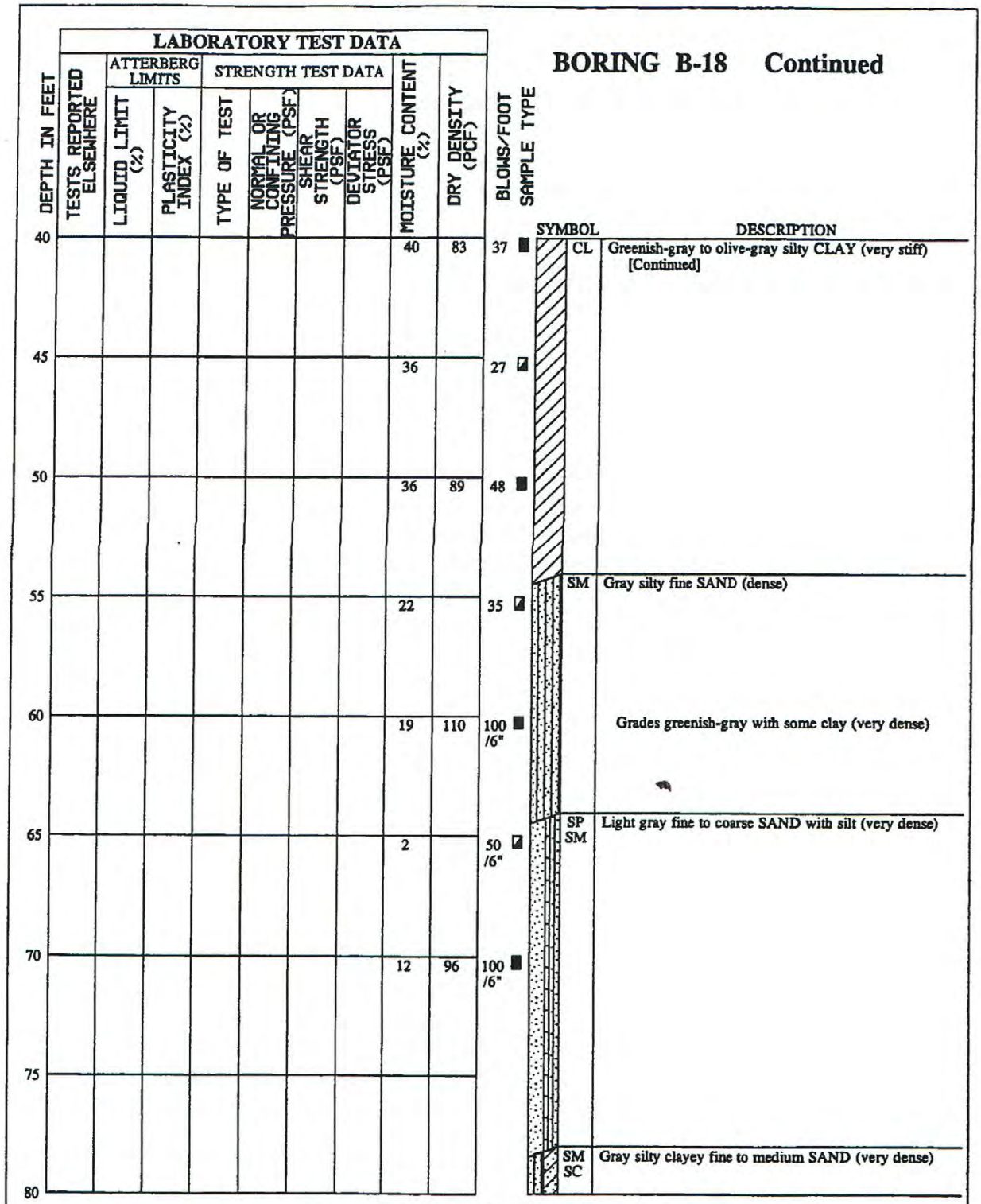
LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 21

BORING B-18 Continued



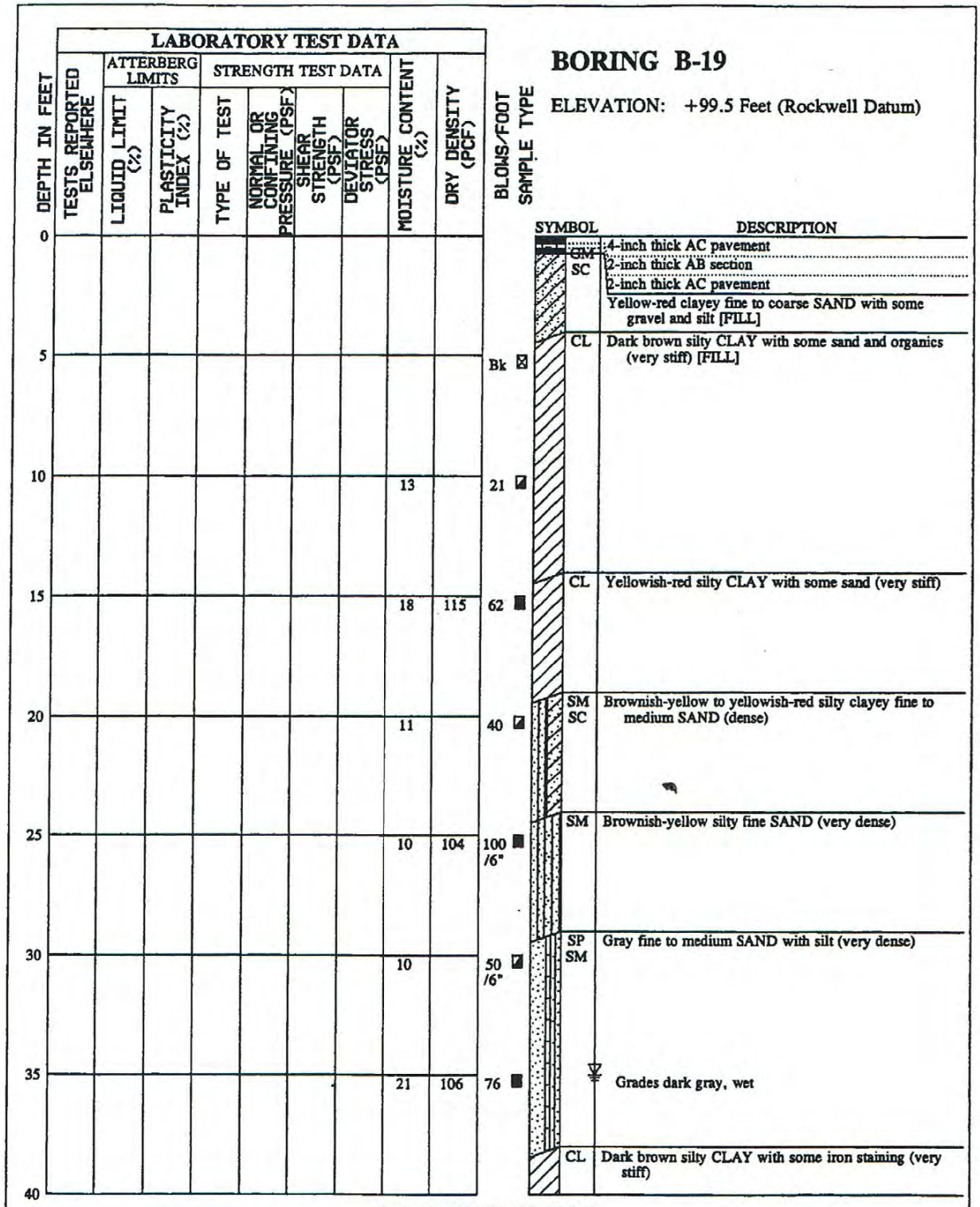
LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

DRAFT

Dames & Moore
PLATE 21 (cont.)



BORING B-19

ELEVATION: +99.5 Feet (Rockwell Datum)

LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

DRAFT

Dames & Moore
PLATE 22

BORING B-19 Continued

DEPTH IN FEET	LABORATORY TEST DATA: TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT	SAMPLE TYPE	SYMBOL	DESCRIPTION
40								41		22		CL	Dark brown silty CLAY with some iron staining (very stiff) [Continued]
45								37	85	60			Grades dark gray to gray
50								38		24			
55													
60													
65													
70													
75													
80													

NOTES:
1. Boring drilled using a truck-mounted hollow-stem auger drilling rig.
2. Boring completed to a depth of 51.5 feet on October 12, 1996.
3. Groundwater encountered at a depth of 35 feet.
4. Boring backfilled with Volclay grout upon completion.

Hammer Weight: 140 lbs
Drop Height: 30 inches

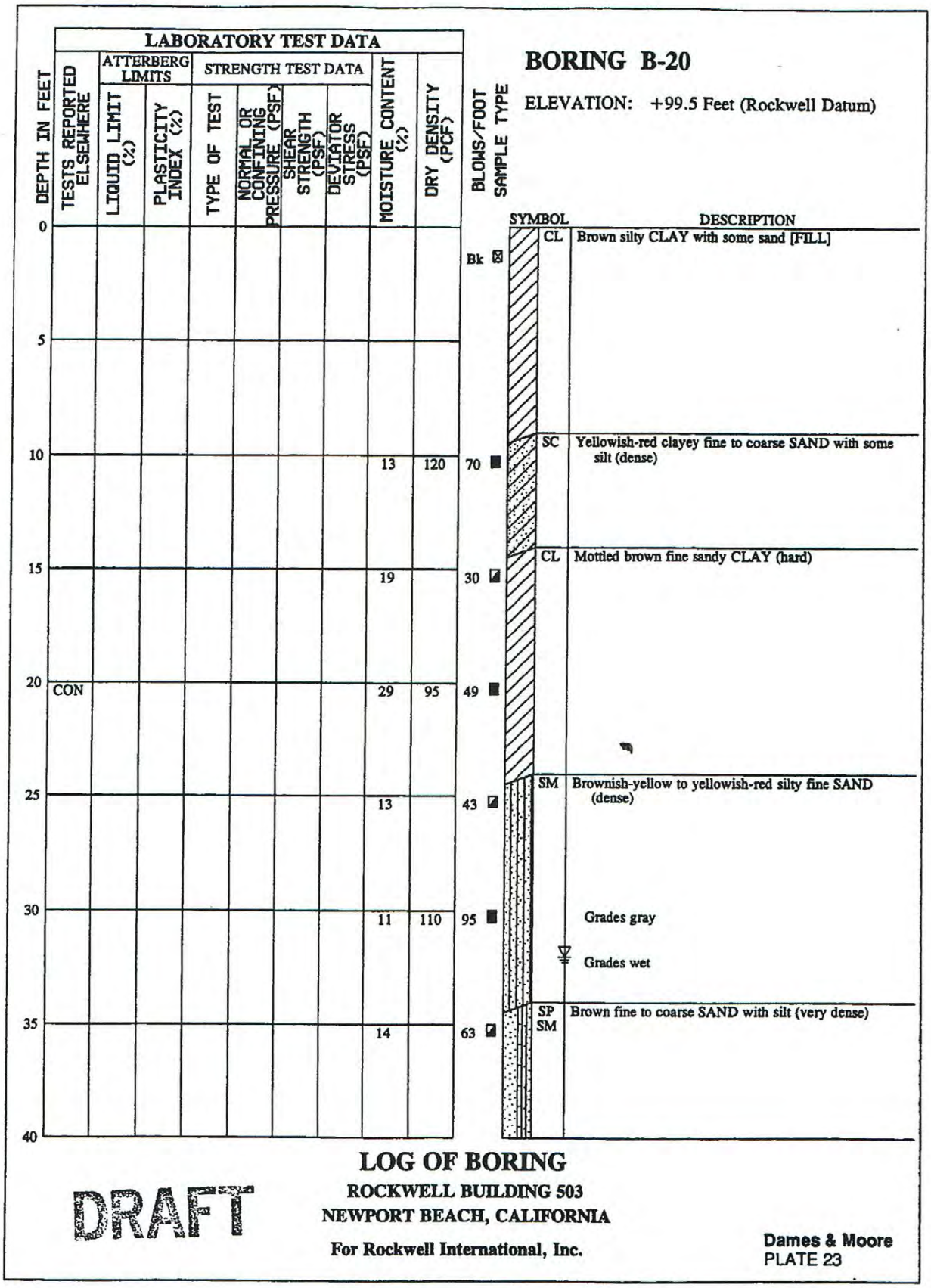
DRAFT

LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 22 (cont.)


BORING B-20
ELEVATION: +99.5 Feet (Rockwell Datum)
LABORATORY TEST DATA
ATTERBERG LIMITS
STRENGTH TEST DATA
DEPTH IN FEET
TESTS REPORTED ELSEWHERE
LIQUID LIMIT (%)
PLASTICITY INDEX (%)
TYPE OF TEST
NORMAL OR CONFINING PRESSURE (PSF)
SHEAR STRENGTH (PSF)
DEVIATOR STRESS (PSF)
MOISTURE CONTENT (%)
DRY DENSITY (PCF)
BLOWS/FOOT
SAMPLE TYPE
SYMBOL
DESCRIPTION
0
5
10
15
20
25
30
35
40
CON
13
120
19
29
95
13
11
110
14
Bk
70
30
49
43
95
63
CL
Brown silty CLAY with some sand [FILL]
SC
Yellowish-red clayey fine to coarse SAND with some silt (dense)
CL
Mottled brown fine sandy CLAY (hard)
SM
Brownish-yellow to yellowish-red silty fine SAND (dense)
Grades gray
Grades wet
SP SM
Brown fine to coarse SAND with silt (very dense)
LOG OF BORING
ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA
For Rockwell International, Inc.
DRAFT
Dames & Moore
PLATE 23

BORING B-20 Continued

DEPTH IN FEET	LABORATORY TEST DATA: TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)
40								17	106
45								37	
50								14	120
55									
60									
65									
70									
75									
80									

BLOWS/FOOT	SAMPLE TYPE	SYMBOL	DESCRIPTION
35	□	SP SM	Brown fine to coarse SAND with silt (very dense) [Continued]
160	■	CL	Mottled greenish-gray and yellowish-red silty CLAY (hard)
16	◪		Grades (very stiff)
80	■	SM	Dark gray silty fine SAND (dense)

NOTES:

1. Boring drilled using a truck-mounted hollow-stem auger drilling rig.
2. Boring completed to a depth of 51.5 feet on October 12, 1996.
3. Groundwater encountered at a depth of 32 feet.
4. Boring backfilled with Volclay grout upon completion.

Hammer Weight: 140 lbs
Drop Height: 30 inches

DRAFT

LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 23 (cont.)

BORING B-21 Continued

DEPTH IN FEET	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT	SAMPLE TYPE	SYMBOL	DESCRIPTION
80								20	106	50 /3"	■	SP SM	Gray fine to medium SAND with silt (very dense) [Continued]
85								25		100 /?"	◪		
90								21	110	50 /1"	■		
95								22		57 /5"	◪	SM	Dark gray silty fine to medium SAND (very dense)
100								20	105	90 /4"	■	SP	Dark gray fine to coarse SAND (very dense)
105													
110													
115													
120													

NOTES:
1. Boring drilled using a truck-mounted hollow stem auger drilling rig.
2. 4-inch diameter Schedule 80 PVC pipe installed to a depth of 100 feet.
3. Boring completed to a depth of 101 feet on October 11, 1996.
4. Groundwater encountered at a depth of 30 feet.
5. Boring backfilled with Volclay grout upon completion.

Hammer Weight: 140 lbs
Drop Height: 30 inches

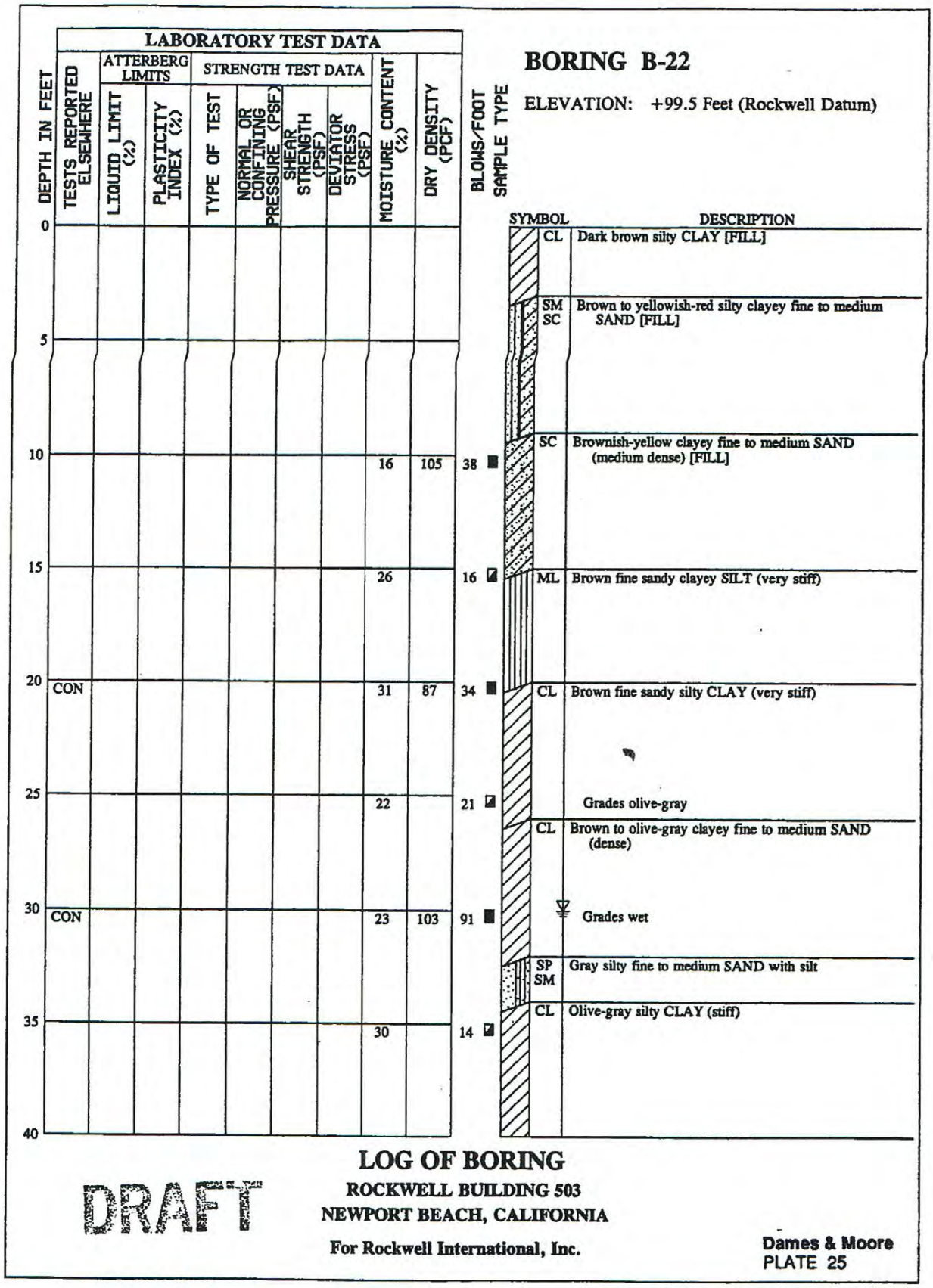
DRAFT

LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 24 (cont.)



BORING B-22

ELEVATION: +99.5 Feet (Rockwell Datum)

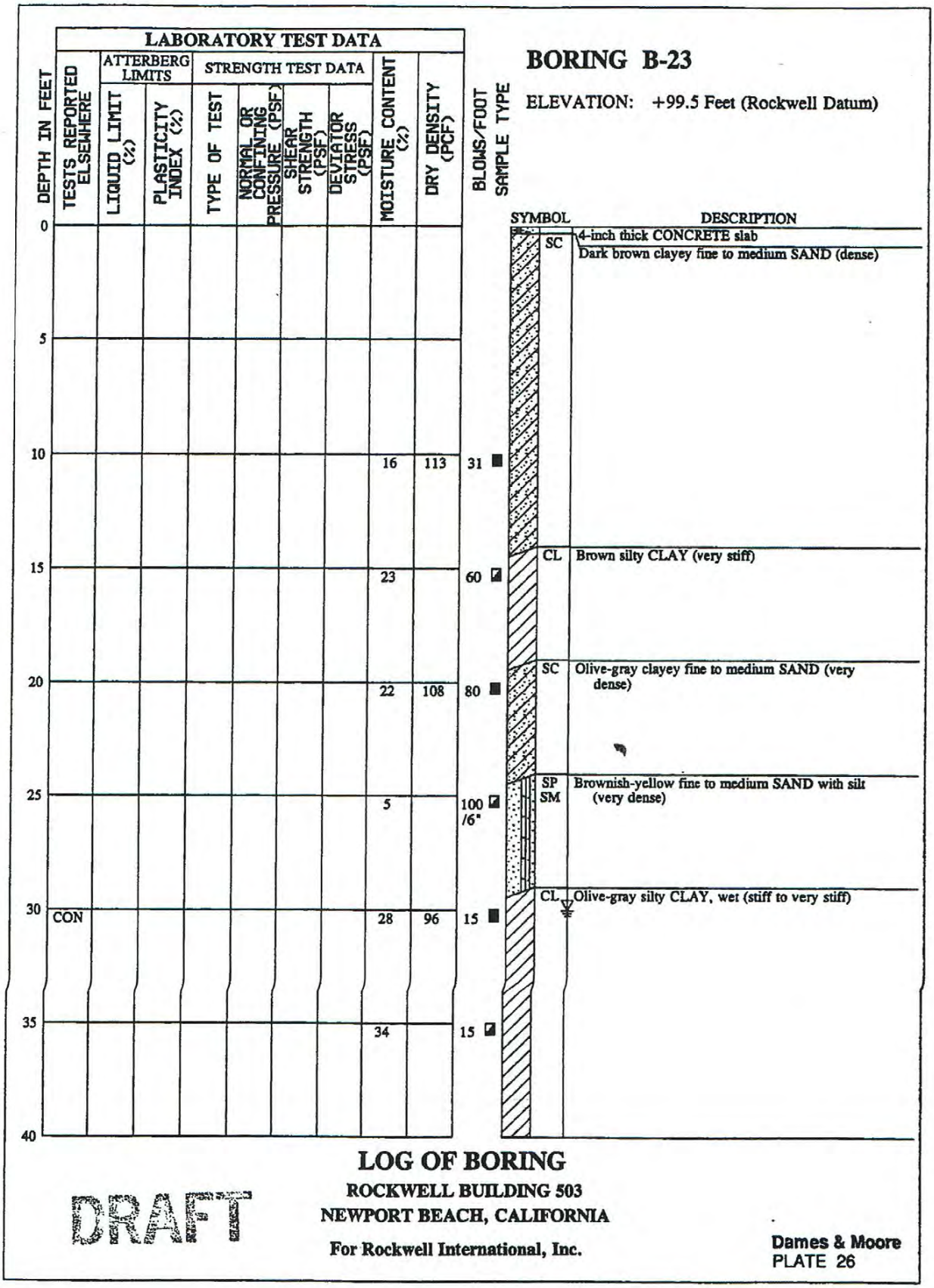
LOG OF BORING

DRAFT

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 25


BORING B-23
ELEVATION: +99.5 Feet (Rockwell Datum)
LABORATORY TEST DATA
ATTERBERG LIMITS
STRENGTH TEST DATA
DEPTH IN FEET
TESTS REPORTED ELSEWHERE
LIQUID LIMIT (%)
PLASTICITY INDEX (%)
TYPE OF TEST
NORMAL OR CONFINING PRESSURE (PSF)
SHEAR STRENGTH (PSF)
DEVIATOR STRESS (PSF)
MOISTURE CONTENT (%)
DRY DENSITY (PCF)
BLOWS/FOOT
SAMPLE TYPE
SYMBOL
DESCRIPTION
0
5
10
15
20
25
30
35
40
CON
16
113
31
23
60
22
108
80
5
100 /6"
28
96
15
34
15
SC
4-inch thick CONCRETE slab
Dark brown clayey fine to medium SAND (dense)
CL
Brown silty CLAY (very stiff)
SC
Olive-gray clayey fine to medium SAND (very dense)
SP SM
Brownish-yellow fine to medium SAND with silt (very dense)
CL
Olive-gray silty CLAY, wet (stiff to very stiff)
LOG OF BORING
ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA
For Rockwell International, Inc.
DRAFT
Dames & Moore
PLATE 26

BORING B-23 Continued

DEPTH IN FEET	LABORATORY TEST DATA: TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT SAMPLE TYPE	SYMBOL	DESCRIPTION
40								25	101	18 ■	CL	Olive-gray silty CLAY (stiff to very stiff) [Continued]
45								19		90 /6" ◪	CL	Olive-gray to gray clayey fine to medium SAND (dense to very dense)
50								6	101	33 ■		Grades with more sand
55												
60												
65												
70												
75												
80												

NOTES:
1. Boring drilled using a truck-mounted hollow-stem auger drilling rig.
2. Boring completed to a depth of 51.5 feet on October 11, 1996.
3. Groundwater encountered at a depth of 30 feet.
4. Boring backfilled with Volclay grout upon completion.

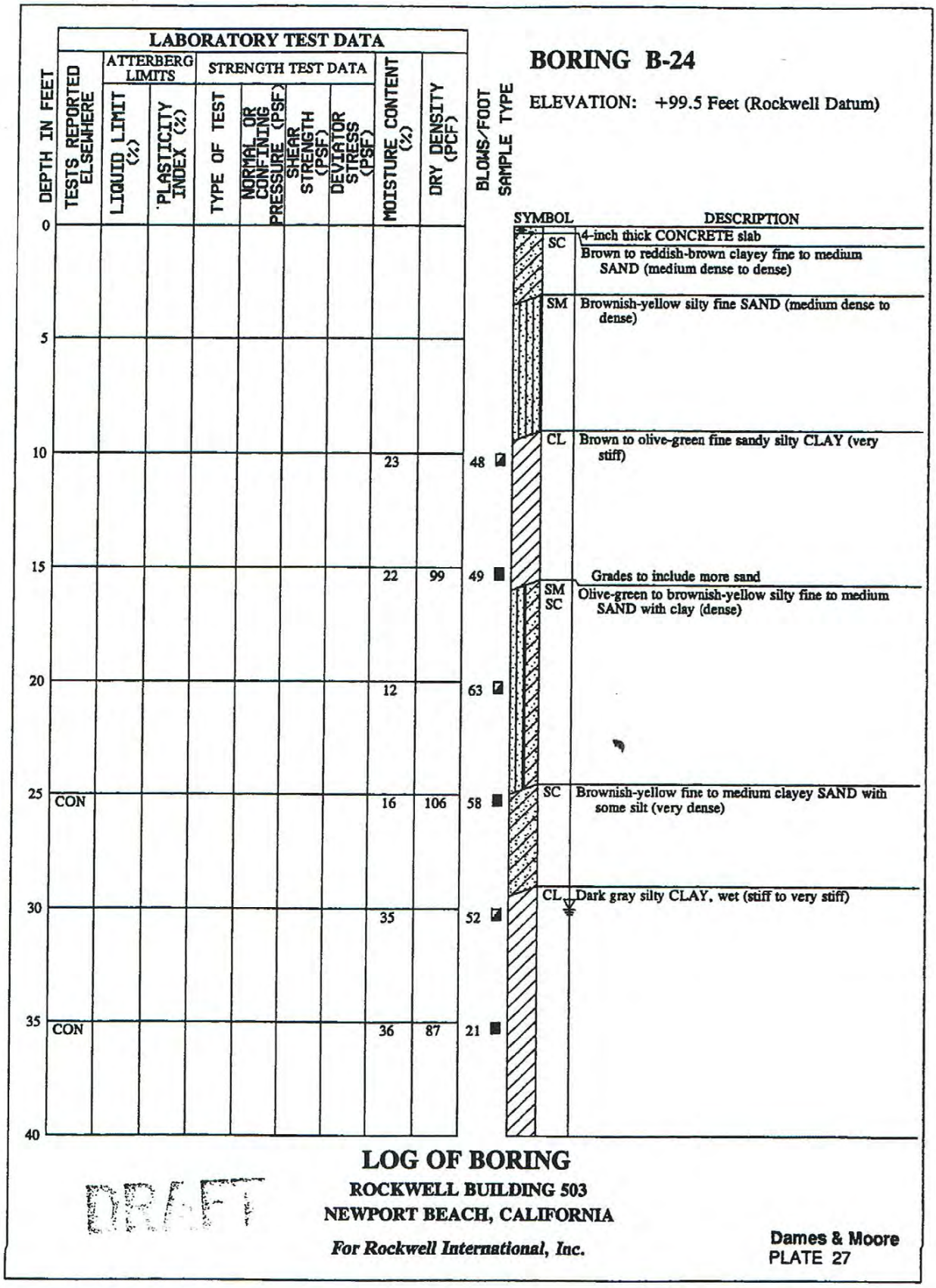
Hammer Weight: 140 lbs
Drop Height: 30 inches

LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 26 (cont.)


BORING B-24
ELEVATION: +99.5 Feet (Rockwell Datum)
LABORATORY TEST DATA
ATTERBERG LIMITS
STRENGTH TEST DATA
DEPTH IN FEET
TESTS REPORTED ELSEWHERE
LIQUID LIMIT (%)
PLASTICITY INDEX (%)
TYPE OF TEST
NORMAL OR CONFINING PRESSURE (PSF)
SHEAR STRENGTH (PSF)
DEVIATOR STRESS (PSF)
MOISTURE CONTENT (%)
DRY DENSITY (PCF)
BLOWS/FOOT
SAMPLE TYPE
SYMBOL
DESCRIPTION
0
5
10
15
20
25
30
35
40
CON
CON
23
22
99
12
16
106
35
36
87
48
49
63
58
52
21
SC
4-inch thick CONCRETE slab
Brown to reddish-brown clayey fine to medium SAND (medium dense to dense)
SM
Brownish-yellow silty fine SAND (medium dense to dense)
CL
Brown to olive-green fine sandy silty CLAY (very stiff)
Grades to include more sand
SM SC
Olive-green to brownish-yellow silty fine to medium SAND with clay (dense)
SC
Brownish-yellow fine to medium clayey SAND with some silt (very dense)
CL
Dark gray silty CLAY, wet (stiff to very stiff)
LOG OF BORING
ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA
For Rockwell International, Inc.
Dames & Moore
PLATE 27

DRAFT

BORING B-24 Continued

DEPTH IN FEET	LABORATORY TEST DATA: TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT	SAMPLE TYPE	SYMBOL	DESCRIPTION
40								31		44	■	CL	Dark gray silty CLAY (stiff to very stiff) [Continued]
45								7	96	34	■	SP SM	Gray fine to medium SAND with silt (dense)
50								21		95 /6"	■	CL	Gray to mottled brown fine sandy silty CLAY (hard)
55													
60													
65													
70													
75													
80													

NOTES:
1. Boring drilled using a truck-mounted hollow-stem auger drilling rig.
2. Boring completed to a depth of 51 feet on October 11, 1996.
3. Groundwater encountered at a depth of 30 feet.
4. Boring backfilled with Volclay grout upon *completion.*

Hammer Weight: 140 lbs
Drop Height: 30 inches

DRAFT

LOG OF BORING

ROCKWELL BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International, Inc.

Dames & Moore
PLATE 27 (cont.)

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
				A F	ARTIFICIAL FILL
COARSE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS — MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		G W	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				G P	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		G M	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				G C	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS — MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	CLEAN SAND (LITTLE OR NO FINES)		S W	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		S M	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS — MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS — LIQUID LIMIT LESS THAN 50			M L	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS — LIQUID LIMIT GREATER THAN 50			M H	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				C H	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

KEY TO LOG OF BORINGS

SAMPLES & BLOWCOUNTS

30 — HAMMER BLOWS PER FOOT OF PENETRATION

■ INDICATES UNDISTURBED DAMES & MOORE SAMPLE

☒ INDICATES DISTURBED OR BULK DAMES & MOORE SAMPLE

◪ STANDARD PENETRATION TEST SAMPLE

□ INDICATES NO RECOVERY

DAMES & MOORE AND SPT SAMPLERS DRIVEN WITH A 140-POUND HAMMER DROPPING 30 INCHES

LABORATORY TESTS

AL	ATTERBERG LIMITS TEST
TXCU	TRIAXIAL TEST (Consoildated, Undrained)
-200	PERCENT PASSING NO. 200 SIEVE (Test results in parentheses)
CON	CONSOLIDATION (Confined Compression) TEST
UC	UNCONFINED COMPRESSION TEST

APPENDIX VII

LABORATORY TESTING BY OTHERS

LOG OF BORING NO 510

DATE DRILLED: Feb. 20, 1967
EQUIPMENT USED: Bucekt Auger
ELEV. OF SURFACE: 46.3

Depth in Feet	Samples	Blows / Foot	DESCRIPTION OF SOILS — CLASSIFICATION	Color	Moisture	Consistency	Dry Unit Weight lb. per cu. ft.	COHESION ○ OR SHEAR RES. ○ KIPS PER SQUARE FOOT (1 2 3 4) MOISTURE PERCENT DRY/WT (10 20 30 40)
								Saturated & drained
2			CLAY, silty, piece of wood	mottled	moist	mod soft	100	
5	2	FILL	sand lenses (soft plastic)				102	
	20						107	
			CLAY, silty (stiff plastic) sandy with depth	brown to light brown		stiff	109	
10	18							
	28				GWS (2)		119	
15			SAND, fine, clayey, silty	light brown		comp	119	
	20							
20			CLAY, silty	brown		stiff	109	
	6		SAND, fine, silty, slightly clayey			comp		
25				gray			109	
	19							
30			SAND, fine to med. clean					
			SAND, fine, very silty		GWS (1)		106	
	38		SAND, fine, clean					
35								
			SILT, clayey (stiff plastic)	gray & gray		firm	89	
40	18							
			End of boring @ 40'					

(1) Ground water surface at completion of boring (2) after 24 hours

COLLINS RADIO, NEWPORT BEACH — PLATE NO. B-10

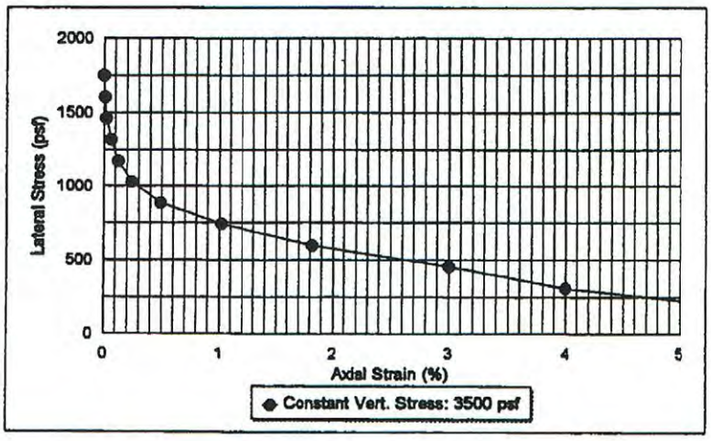
MAURSETH HOWE LOCKWOOD & ASSOC. — FILE NO. 3347-E-1

101-5004-750-C P-25

CONSOLIDATED UNDRAINED TRIAXIAL TEST

Project Name:	Rockwell	Sample Type:	Undisturbed
Project No.:	10839-211-004	Soil Description:	Gray Silty Clay, m. stiff
Boring No.:	B-1	Dry Density (pcf):	106.3
Sample No.:	1T	Moisture Content (%):	20.3
Depth (feet):	5		

Sample Diameter (inch):	2.415	Wet Wt of Soil + Tare (gms)	1045.32
Sample Height (inch):	5.5	Dry Wt of Soil + Tare (gms)	902.48
Sample Weight (gms):	846.16	Wt of Tare (gms)	199.43



Vertical Stress (psf)	Deformation (inch)	Area (sq.in)	Lateral Stress (psf)	Vertical Strain (%)
3500	0.0000	4.5806	1750	0.00
3500	0.0005	4.5810	1606	0.01
3500	0.0010	4.5815	1462	0.02
3500	0.0035	4.5835	1318	0.06
3500	0.0065	4.5860	1174	0.12
3500	0.0130	4.5915	1030	0.24
3500	0.0270	4.6032	886	0.49
3500	0.0560	4.6277	742	1.02
3500	0.1000	4.6655	598	1.82
3500	0.1650	4.7223	454	3.00
3500	0.2200	4.7715	310	4.00
3500	0.3150	4.8589	166	5.73
3500	0.4650	5.0037	0	8.45
3344	0.5000	5.0387		9.09
3339	0.5500	5.0896		10.00
3361	0.6000	5.1415		10.91
3382	0.6500	5.1945		11.82
3429	0.7000	5.2486		12.73
3421	0.7500	5.3039		13.64
3385	0.8000	5.3603		14.55
3375	0.8500	5.4179		15.45
3339	0.9000	5.4768		16.36
3329	0.9500	5.5370		17.27
3292	1.0000	5.5985		18.18

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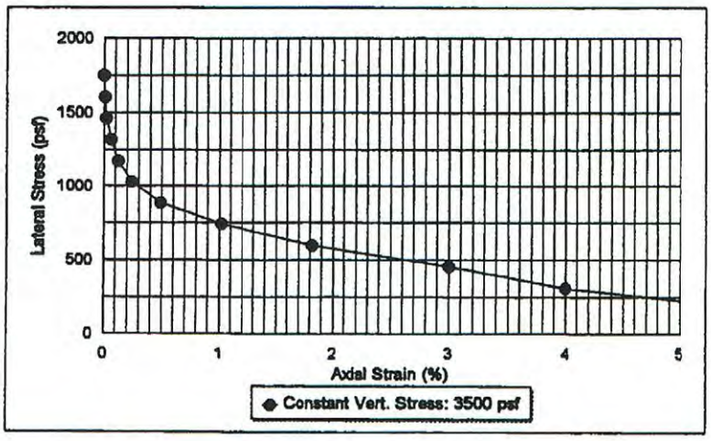
CONSOLIDATED UNDRAINED TRIAXIAL TEST

Project Name:	Rockwell	Sample Type:	Undisturbed
Project No.:	10839-211-004	Soil Description:	Gray Silty Clay, m. stiff
Boring No.:	B-1	Dry Density (pcf):	106.3
Sample No.:	1T	Moisture Content (%):	20.3
Depth (feet):	5		

Sample Diameter (inch):	2.415	Wet Wt of Soil + Tare (gms)	1045.32
Sample Height (inch):	5.5	Dry Wt of Soil + Tare (gms)	902.48
Sample Weight (gms):	846.16	Wt of Tare (gms)	199.43



Vertical Stress (psf)	Deformation (inch)	Area (sq.in)	Lateral Stress (psf)	Vertical Strain (%)
3500	0.0000	4.5806	1750	0.00
3500	0.0005	4.5810	1606	0.01
3500	0.0010	4.5815	1462	0.02
3500	0.0035	4.5835	1318	0.06
3500	0.0065	4.5860	1174	0.12
3500	0.0130	4.5915	1030	0.24
3500	0.0270	4.6032	886	0.49
3500	0.0560	4.6277	742	1.02
3500	0.1000	4.6655	598	1.82
3500	0.1650	4.7223	454	3.00
3500	0.2200	4.7715	310	4.00
3500	0.3150	4.8589	166	5.73
3500	0.4650	5.0037	0	8.45
3344	0.5000	5.0387		9.09
3339	0.5500	5.0896		10.00
3361	0.6000	5.1415		10.91
3382	0.6500	5.1945		11.82
3429	0.7000	5.2486		12.73
3421	0.7500	5.3039		13.64
3385	0.8000	5.3603		14.55
3375	0.8500	5.4179		15.45
3339	0.9000	5.4768		16.36
3329	0.9500	5.5370		17.27
3292	1.0000	5.5985		18.18

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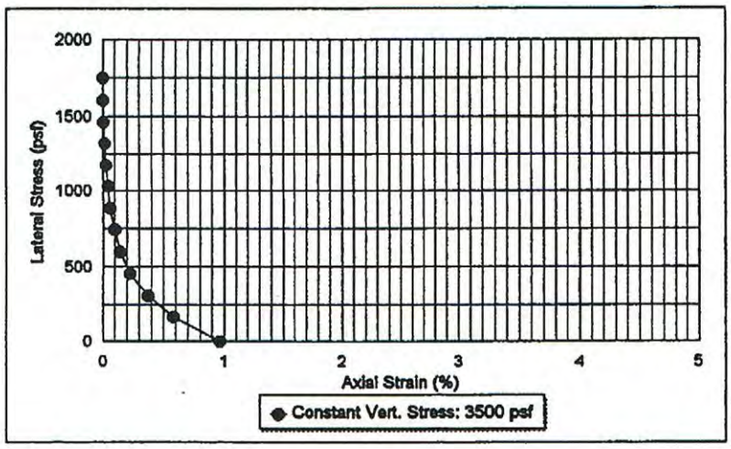
CONSOLIDATED UNDRAINED TRIAXIAL TEST

Project Name:	Rockwell	Sample Type:	Undisturbed
Project No.:	10839-211-004	Soil Description:	Red. Brn Silty Clay, stiff
Boring No.:	B-3	Dry Density (pcf):	107.9
Sample No.:	3T	Moisture Content (%):	19.7
Depth (feet):	10		

Sample Diameter (inch):	2.415	Wet Wt of Soil + Tare (gms)	1082.65
Sample Height (inch):	5.7	Dry Wt of Soil + Tare (gms)	936.93
Sample Weight (gms):	885.91	Wt of Tare (gms)	196.75



Vertical Stress (psf)	Deformation (inch)	Area (sq.in)	Lateral Stress (psf)	Vertical Strain (%)
3500	0.0000	4.5806	1750	0.00
3500	0.0002	4.5808	1606	0.00
3500	0.0005	4.5810	1462	0.01
3500	0.0010	4.5814	1318	0.02
3500	0.0015	4.5818	1174	0.03
3500	0.0025	4.5826	1030	0.04
3500	0.0035	4.5834	886	0.06
3500	0.0055	4.5851	742	0.10
3500	0.0080	4.5871	598	0.14
3500	0.0125	4.5907	454	0.22
3500	0.0210	4.5976	310	0.37
3500	0.0330	4.6073	166	0.58
3500	0.0550	4.6253	0	0.96
5652	0.1000	4.6624		1.75
6152	0.1500	4.7044		2.63
6461	0.2000	4.7472		3.51
6703	0.2500	4.7908		4.39
6850	0.3000	4.8351		5.26
6993	0.3500	4.8803		6.14
7074	0.4000	4.9263		7.02
7152	0.4500	4.9733		7.89
7170	0.5000	5.0211		8.77
7229	0.6000	5.1195		10.53
7225	0.7000	5.2219		12.28
7189	0.8000	5.3285		14.04
7095	0.9000	5.4395		15.79
6999	1.0000	5.5552		17.54

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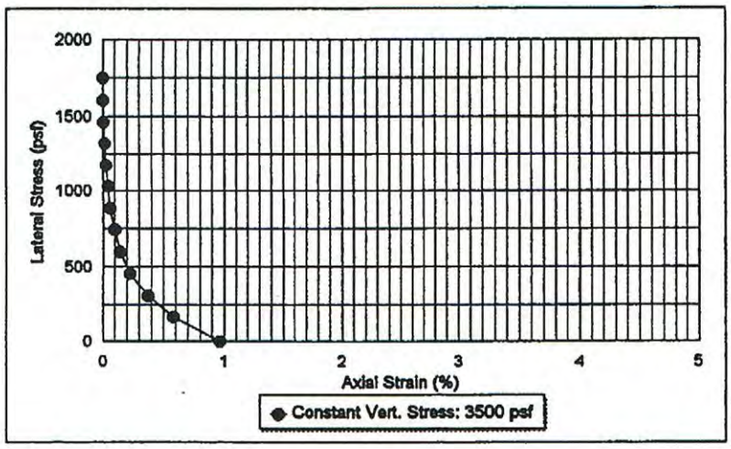
PLATE 30

CONSOLIDATED UNDRAINED TRIAXIAL TEST

Project Name:	Rockwell	Sample Type:	Undisturbed
Project No.:	10839-211-004	Soil Description:	Red. Brn Silty Clay, stiff
Boring No.:	B-3	Dry Density (pcf):	107.9
Sample No.:	3T	Moisture Content (%):	19.7
Depth (feet):	10		

Sample Diameter (inch):	2.415	Wet Wt of Soil + Tare (gms)	1082.65
Sample Height (inch):	5.7	Dry Wt of Soil + Tare (gms)	936.93
Sample Weight (gms):	885.91	Wt of Tare (gms)	196.75



Vertical Stress (psf)	Deformation (inch)	Area (sq.in)	Lateral Stress (psf)	Vertical Strain (%)
3500	0.0000	4.5806	1750	0.00
3500	0.0002	4.5808	1606	0.00
3500	0.0005	4.5810	1462	0.01
3500	0.0010	4.5814	1318	0.02
3500	0.0015	4.5818	1174	0.03
3500	0.0025	4.5826	1030	0.04
3500	0.0035	4.5834	886	0.06
3500	0.0055	4.5851	742	0.10
3500	0.0080	4.5871	598	0.14
3500	0.0125	4.5907	454	0.22
3500	0.0210	4.5976	310	0.37
3500	0.0330	4.6073	166	0.58
3500	0.0550	4.6253	0	0.96
5652	0.1000	4.6624		1.75
6152	0.1500	4.7044		2.63
6461	0.2000	4.7472		3.51
6703	0.2500	4.7908		4.39
6850	0.3000	4.8351		5.26
6993	0.3500	4.8803		6.14
7074	0.4000	4.9263		7.02
7152	0.4500	4.9733		7.89
7170	0.5000	5.0211		8.77
7229	0.6000	5.1195		10.53
7225	0.7000	5.2219		12.28
7189	0.8000	5.3285		14.04
7095	0.9000	5.4395		15.79
6999	1.0000	5.5552		17.54

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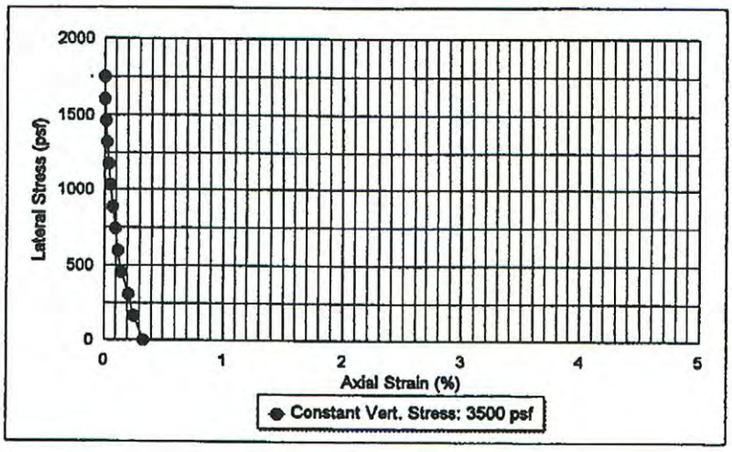
Dames & Moore
PLATE 30

CONSOLIDATED UNDRAINED TRIAXIAL TEST

Project Name:	Rockwell	Sample Type:	Undisturbed
Project No.:	10839-211-004	Soil Description:	Red. Brn Silty Clay, v. stiff
Boring No.:	B-11	Dry Density (pcf):	114.9
Sample No.:	2T	Moisture Content (%):	15.9
Depth (feet):	7.5		
Sample Diameter (inch):	2.415	Wet Wt of Soil + Tare (gms)	1088.93
Sample Height (inch):	5.55	Dry Wt of Soil + Tare (gms)	966.62
Sample Weight (gms):	889.71	Wt of Tare (gms)	198.31



Vertical Stress (psf)	Deformation (inch)	Area (sq.in)	Lateral Stress (psf)	Vertical Strain (%)
3500	0.0000	4.5806	1750	0.00
3500	0.0002	4.5808	1606	0.00
3500	0.0005	4.5810	1462	0.01
3500	0.0011	4.5815	1318	0.02
3500	0.0018	4.5821	1174	0.03
3500	0.0028	4.5829	1030	0.05
3500	0.0038	4.5838	886	0.07
3500	0.0050	4.5848	742	0.09
3500	0.0065	4.5860	598	0.12
3500	0.0080	4.5872	454	0.14
3500	0.0115	4.5901	310	0.21
3500	0.0140	4.5922	166	0.25
3500	0.0185	4.5959	0	0.33
4829	0.0500	4.6223		0.90
5649	0.1000	4.6647		1.80
6148	0.1500	4.7079		2.70
6455	0.2000	4.7519		3.60
6695	0.2500	4.7967		4.50
6840	0.3000	4.8424		5.41
6981	0.3500	4.8889		6.31
7059	0.4000	4.9364		7.21
7151	0.5000	5.0342		9.01
7206	0.6000	5.1359		10.81
7198	0.7000	5.2418		12.61
7157	0.8000	5.3521		14.41
7059	0.9000	5.4672		16.22
6959	1.0000	5.5874		18.02

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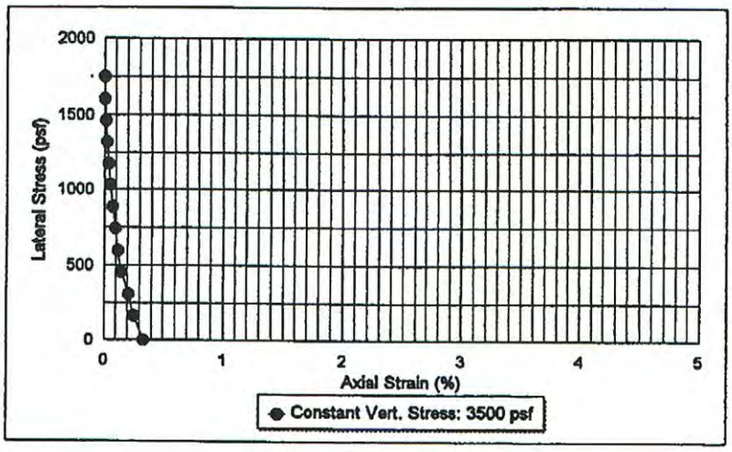
CONSOLIDATED UNDRAINED TRIAXIAL TEST

Project Name:	Rockwell	Sample Type:	Undisturbed
Project No.:	10839-211-004	Soil Description:	Red. Brn Silty Clay, v. stiff
Boring No.:	B-11	Dry Density (pcf):	114.9
Sample No.:	2T	Moisture Content (%):	15.9
Depth (feet):	7.5		
Sample Diameter (inch):	2.415	Wet Wt of Soil + Tare (gms)	1088.93
Sample Height (inch):	5.55	Dry Wt of Soil + Tare (gms)	966.62
Sample Weight (gms):	889.71	Wt of Tare (gms)	198.31



Vertical Stress (psf)	Deformation (inch)	Area (sq.in)	Lateral Stress (psf)	Vertical Strain (%)
3500	0.0000	4.5806	1750	0.00
3500	0.0002	4.5808	1606	0.00
3500	0.0005	4.5810	1462	0.01
3500	0.0011	4.5815	1318	0.02
3500	0.0018	4.5821	1174	0.03
3500	0.0028	4.5829	1030	0.05
3500	0.0038	4.5838	886	0.07
3500	0.0050	4.5848	742	0.09
3500	0.0065	4.5860	598	0.12
3500	0.0080	4.5872	454	0.14
3500	0.0115	4.5901	310	0.21
3500	0.0140	4.5922	166	0.25
3500	0.0185	4.5959	0	0.33
4829	0.0500	4.6223		0.90
5649	0.1000	4.6647		1.80
6148	0.1500	4.7079		2.70
6455	0.2000	4.7519		3.60
6695	0.2500	4.7967		4.50
6840	0.3000	4.8424		5.41
6981	0.3500	4.8889		6.31
7059	0.4000	4.9364		7.21
7151	0.5000	5.0342		9.01
7206	0.6000	5.1359		10.81
7198	0.7000	5.2418		12.61
7157	0.8000	5.3521		14.41
7059	0.9000	5.4672		16.22
6959	1.0000	5.5874		18.02

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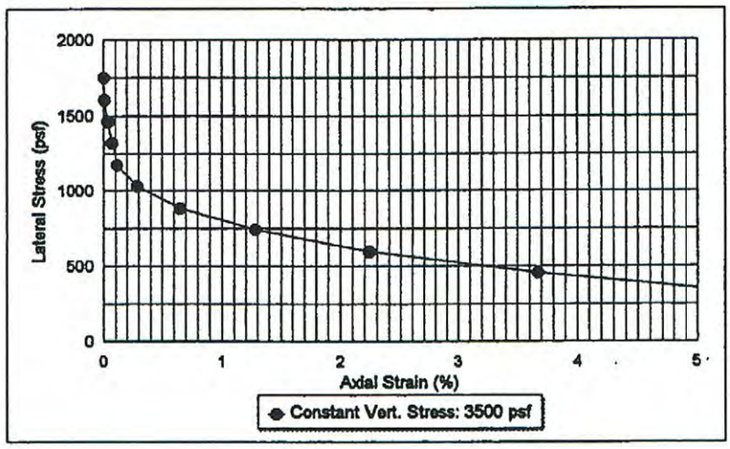
CONSOLIDATED UNDRAINED TRIAXIAL TEST

Project Name:	Rockwell	Sample Type:	Undisturbed
Project No.:	10839-211-004	Soil Description:	Strong Brn Silty Clay, m.stif
Boring No.:	B-12	Dry Density (pcf):	106.5
Sample No.:	1	Moisture Content (%):	19.1
Depth (feet):	5		

Sample Diameter (inch):	2.415	Wet Wt of Soil + Tare (gms)	1093.67
Sample Height (inch):	5.85	Dry Wt of Soil + Tare (gms)	949.55
Sample Weight (gms):	893.28	Wt of Tare (gms)	196.7



Vertical Stress (psf)	Deformation (inch)	Area (sq.in)	Lateral Stress (psf)	Vertical Strain (%)
3500	0.0000	4.5806	1750	0.00
3500	0.0005	4.5810	1606	0.01
3500	0.0020	4.5822	1462	0.03
3500	0.0040	4.5838	1318	0.07
3500	0.0065	4.5857	1174	0.11
3500	0.0165	4.5936	1030	0.28
3500	0.0380	4.6106	886	0.65
3500	0.0750	4.6401	742	1.28
3500	0.1310	4.6856	598	2.24
3500	0.2150	4.7554	454	3.68
3500	0.3250	4.8501	310	5.56
3500	0.4540	4.9660	166	7.76
3500	0.6370	5.1404	0	10.89
3238	0.7000	5.2032		11.97
3234	0.7500	5.2543		12.82
3202	0.8000	5.3063		13.68
3171	0.8500	5.3593		14.53
3165	0.9000	5.4135		15.38
3160	0.9500	5.4687		16.24
3154	1.0000	5.5251		17.09

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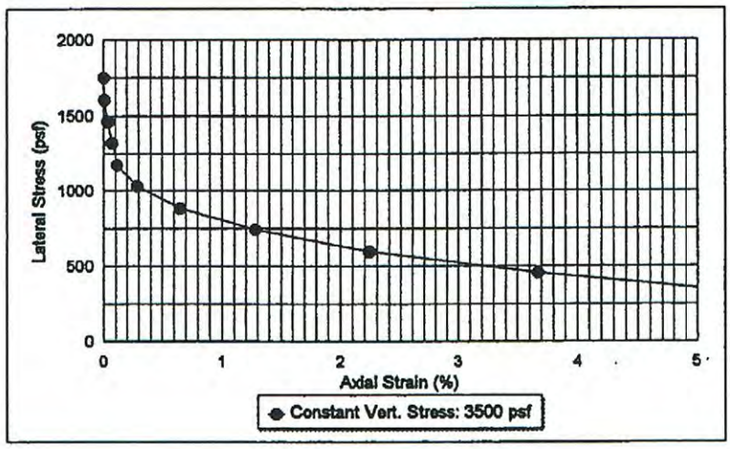
CONSOLIDATED UNDRAINED TRIAXIAL TEST

Project Name:	Rockwell	Sample Type:	Undisturbed
Project No.:	10839-211-004	Soil Description:	Strong Brn Silty Clay, m.stif
Boring No.:	B-12	Dry Density (pcf):	106.5
Sample No.:	1	Moisture Content (%):	19.1
Depth (feet):	5		

Sample Diameter (inch):	2.415	Wet Wt of Soil + Tare (gms)	1093.67
Sample Height (inch):	5.85	Dry Wt of Soil + Tare (gms)	949.55
Sample Weight (gms):	893.28	Wt of Tare (gms)	196.7



Vertical Stress (psf)	Deformation (inch)	Area (sq.in)	Lateral Stress (psf)	Vertical Strain (%)
3500	0.0000	4.5806	1750	0.00
3500	0.0005	4.5810	1606	0.01
3500	0.0020	4.5822	1462	0.03
3500	0.0040	4.5838	1318	0.07
3500	0.0065	4.5857	1174	0.11
3500	0.0165	4.5936	1030	0.28
3500	0.0380	4.6106	886	0.65
3500	0.0750	4.6401	742	1.28
3500	0.1310	4.6856	598	2.24
3500	0.2150	4.7554	454	3.68
3500	0.3250	4.8501	310	5.56
3500	0.4540	4.9660	166	7.76
3500	0.6370	5.1404	0	10.89
3238	0.7000	5.2032		11.97
3234	0.7500	5.2543		12.82
3202	0.8000	5.3063		13.68
3171	0.8500	5.3593		14.53
3165	0.9000	5.4135		15.38
3160	0.9500	5.4687		16.24
3154	1.0000	5.5251		17.09

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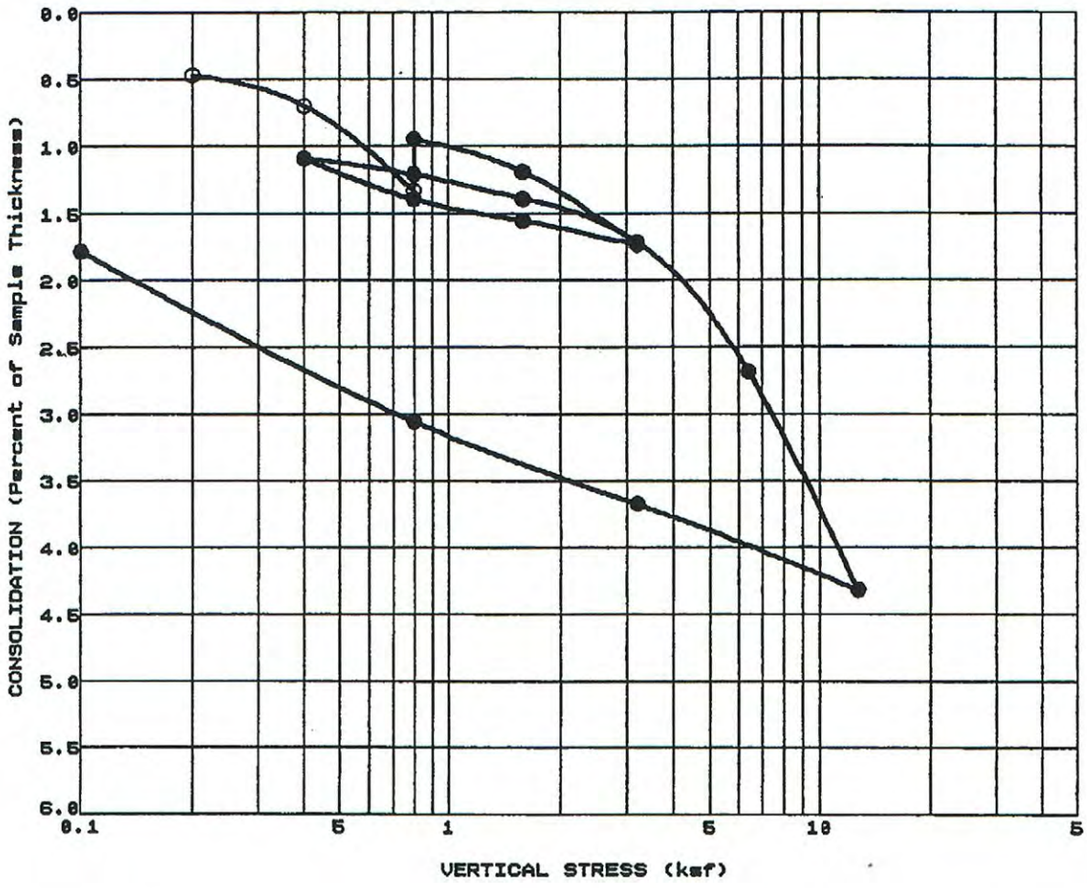

LEGEND: ○ At Field Moisture
● After Addition of Water

Boring No.	B-1	Initial Dry Density (pcf)	116.5
Sample No.	2R	Moisture Content (%):	
Depth (feet)	10.0	Before	17.3
Soil Type	CL	After	15.1
Soil Description	Dk Brn Sandy Clay		

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CONSOLIDATION CURVE

Project No. 10839-211-004
Project Name Rockwell
Date 10/29/96 Figure No. ____

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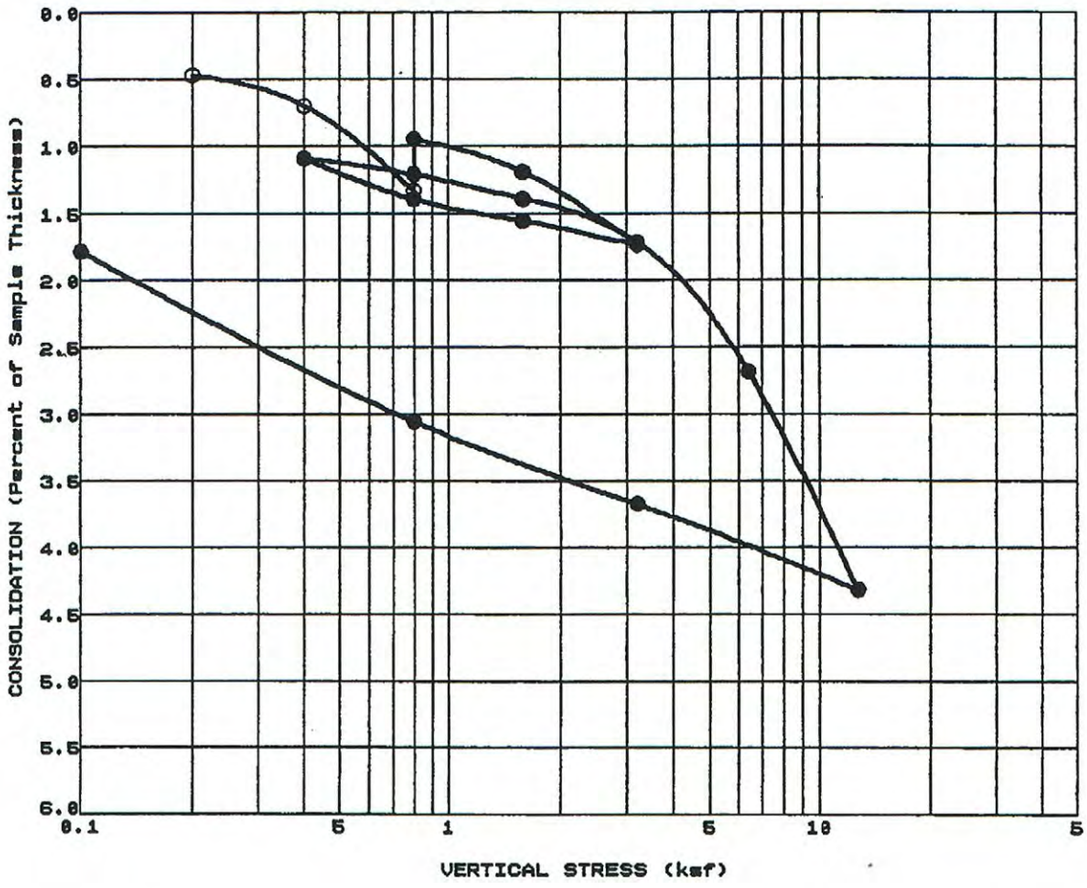
PLATE 34



LEGEND: ○ At Field Moisture
● After Addition of Water

Boring No.	B-1	Initial Dry Density (pcf)	116.5
Sample No.	2R	Moisture Content (%):	
Depth (feet)	10.0	Before	17.3
Soil Type	CL	After	15.1
Soil Description	Dk Brn Sandy Clay		

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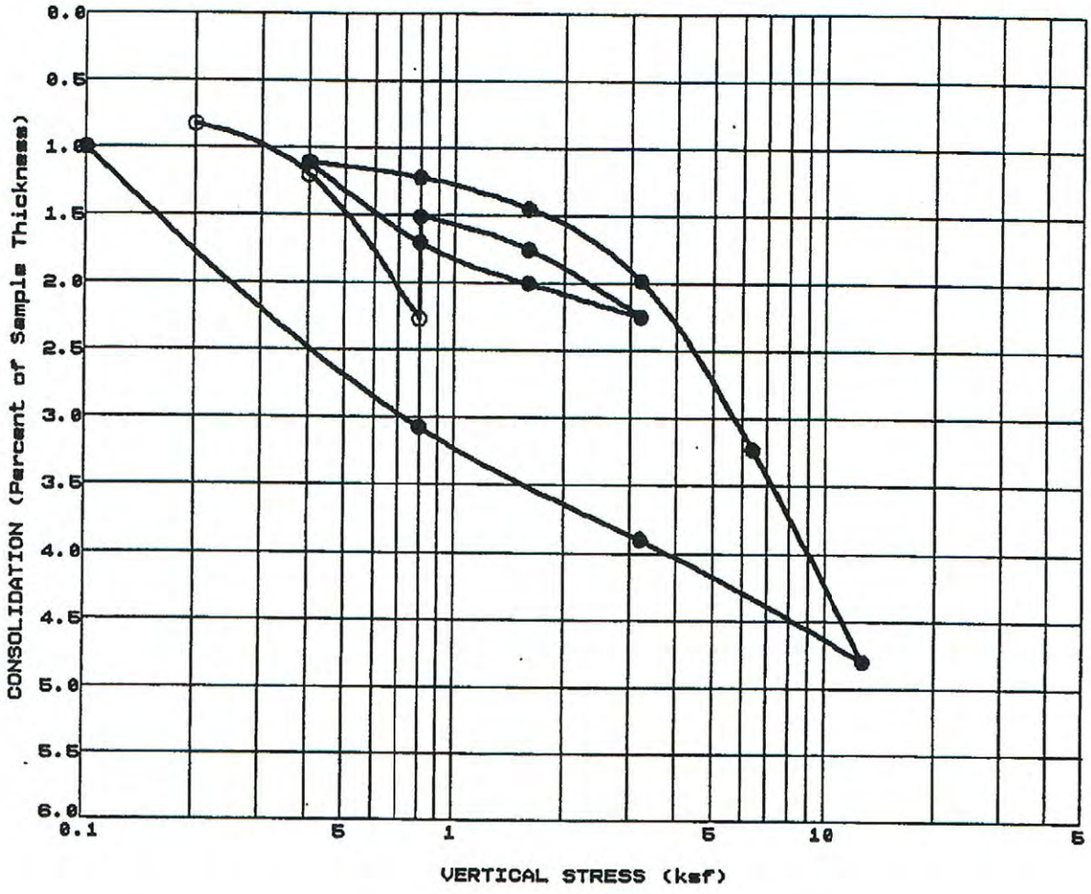
CONSOLIDATION CURVE

Project No. 10839-211-004
Project Name Rockwell
Date 10/29/96 Figure No. ____

Dames & Moore
PLATE 34



LEGEND: ○ At Field Moisture
● After Addition of Water

Boring No.	B-3	Initial Dry Density (pcf)	108.8
Sample No.	3R	Moisture Content (%):	
Depth (feet)	10.0	Before	20.6
Soil Type	CL	After	21.3
Soil Description	Dk Brn Sandy Clay		

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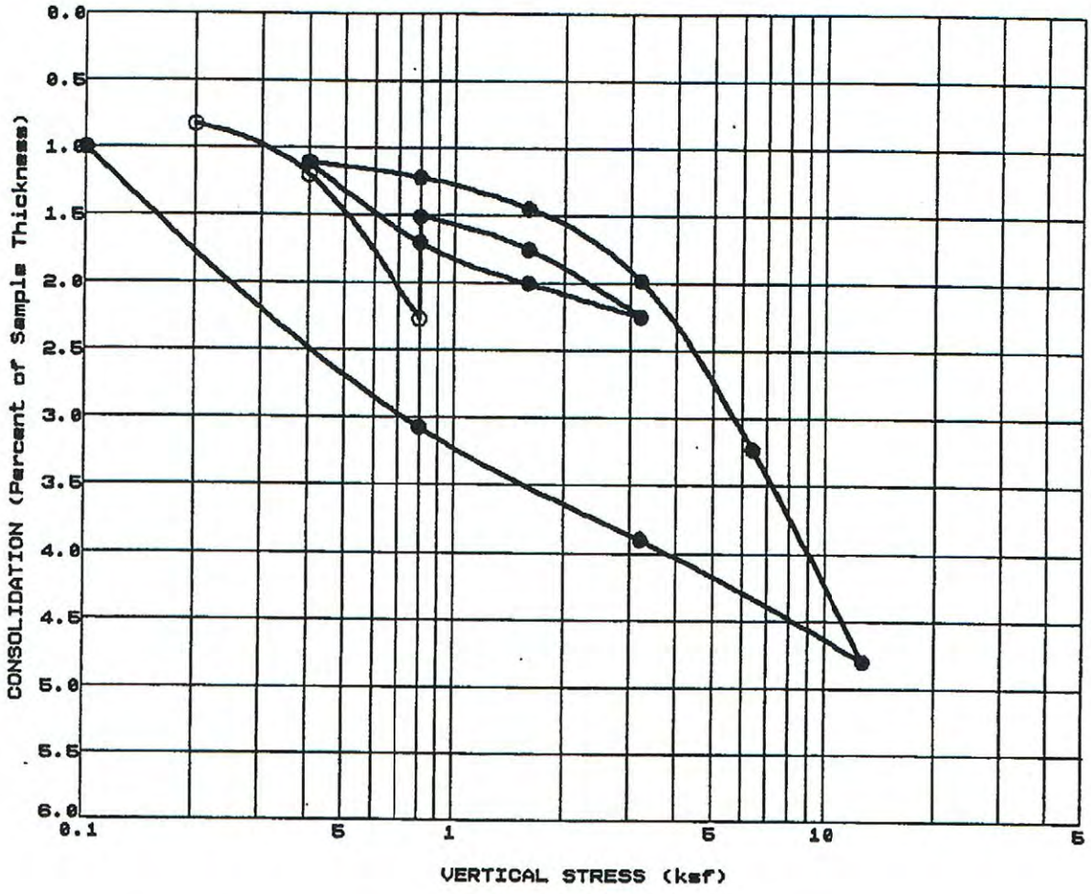
CONSOLIDATION CURVE
ASTM D 2435

Project No. 10839-211-004
Project Name Rockwell
Date 11/13/96 Figure No. ____

Dames & Moore
PLATE 35



LEGEND: ○ At Field Moisture
● After Addition of Water

Boring No.	B-3	Initial Dry Density (pcf)	108.8
Sample No.	3R	Moisture Content (%):	
Depth (feet)	10.0	Before	20.6
Soil Type	CL	After	21.3
Soil Description	Dk Brn Sandy Clay		

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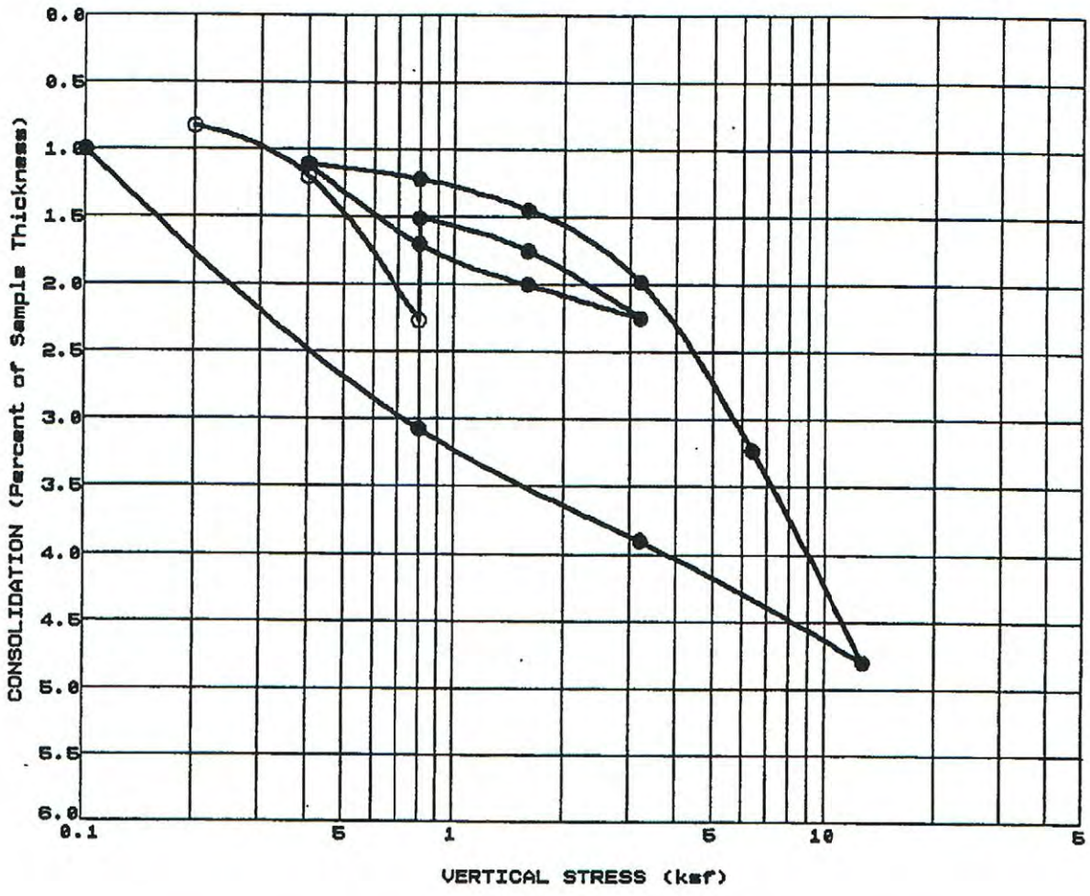
CONSOLIDATION CURVE
ASTM D 2435

Project No. 10839-211-004
Project Name Rockwell
Date 11/13/96 Figure No. ____

Dames & Moore
PLATE 35



LEGEND: ○ At Field Moisture
● After Addition of Water

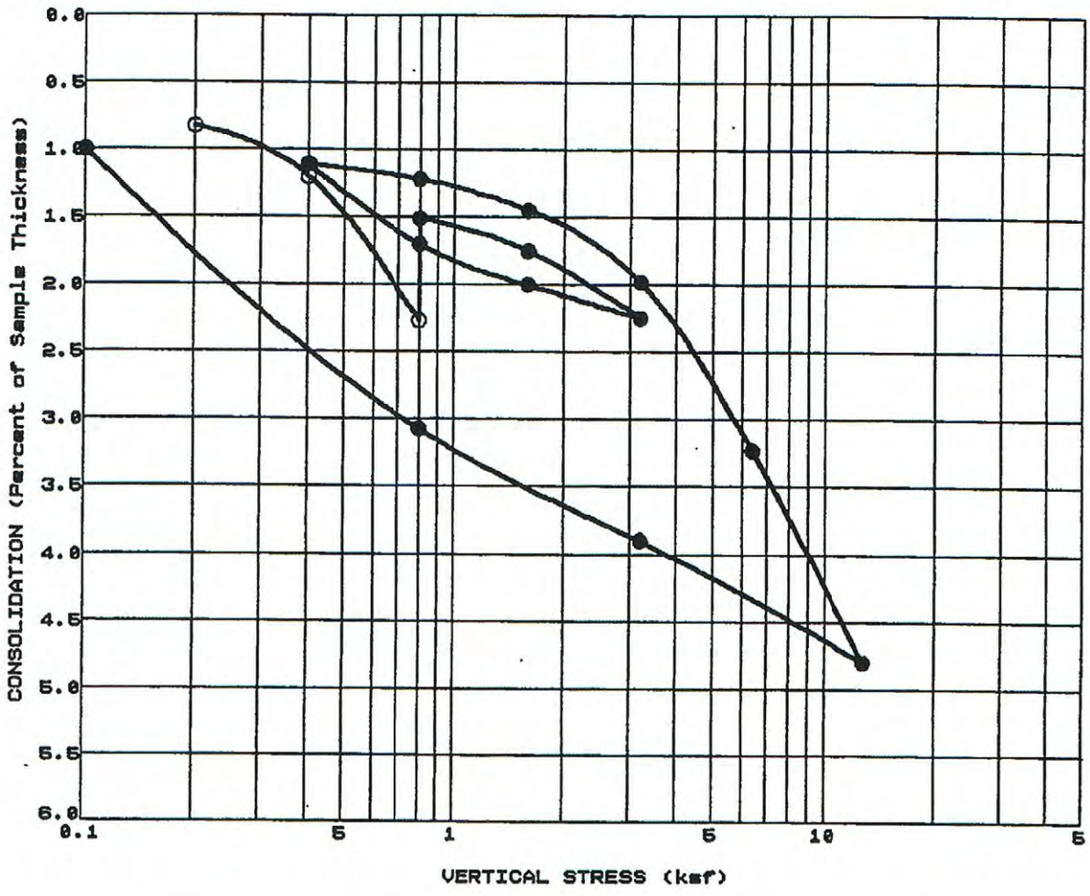
Boring No.	B-3	Initial Dry Density (pcf)	108.8
Sample No.	3R	Moisture Content (%):	
Depth (feet)	10.0	Before	20.6
Soil Type	CL	After	21.3
Soil Description	Dk Brn Sandy Clay		

DRAFT

CONSOLIDATION CURVE
ASTM D 2435

Project No. 10839-211-004
Project Name Rockwell
Date 11/13/96 Figure No. _____

Dames & Moore
PLATE 35



LEGEND: ○ At Field Moisture
● After Addition of Water

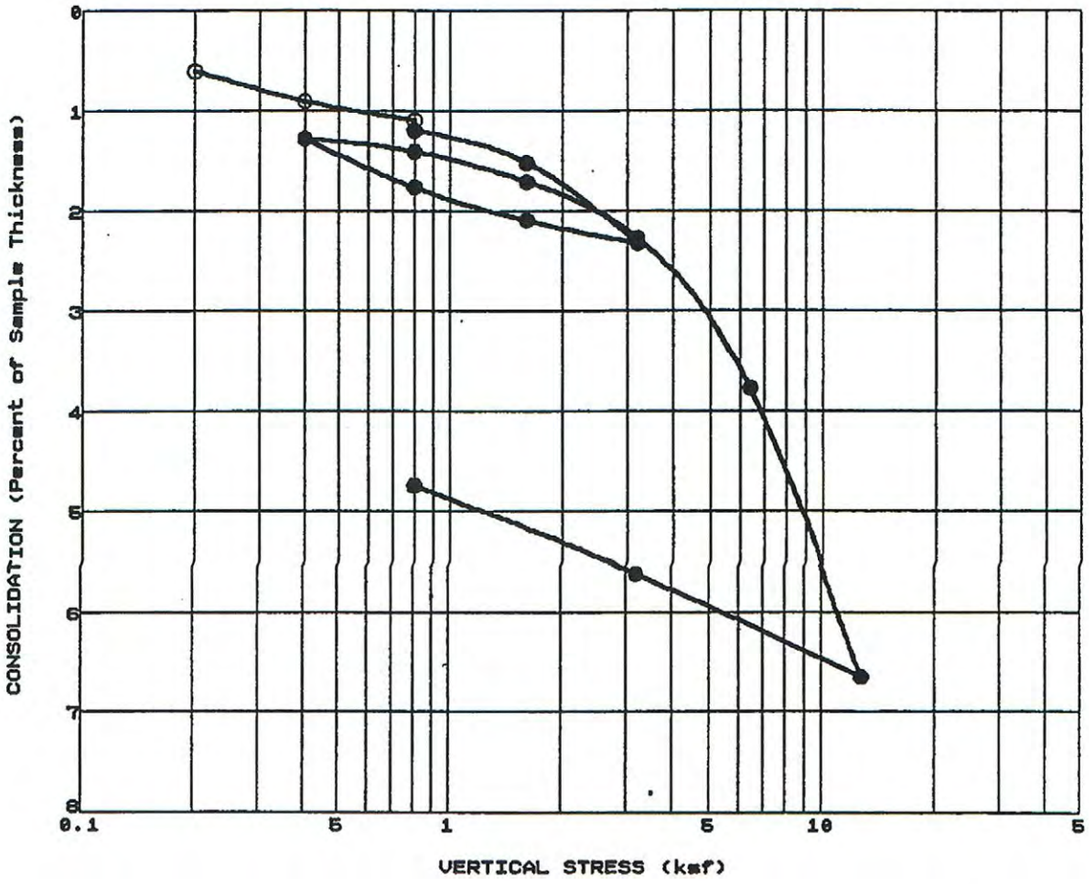
Boring No.	B-3	Initial Dry Density (pcf)	108.8
Sample No.	3R	Moisture Content (%):	
Depth (feet)	10.0	Before	20.6
Soil Type	CL	After	21.3
Soil Description	Dk Brn Sandy Clay		

DRAFT

CONSOLIDATION CURVE
ASTM D 2435

Project No. 10839-211-004
Project Name Rockwell
Date 11/13/96 Figure No. _____

Dames & Moore
PLATE 35



LEGEND: ○ At Field Moisture
● After Addition of Water

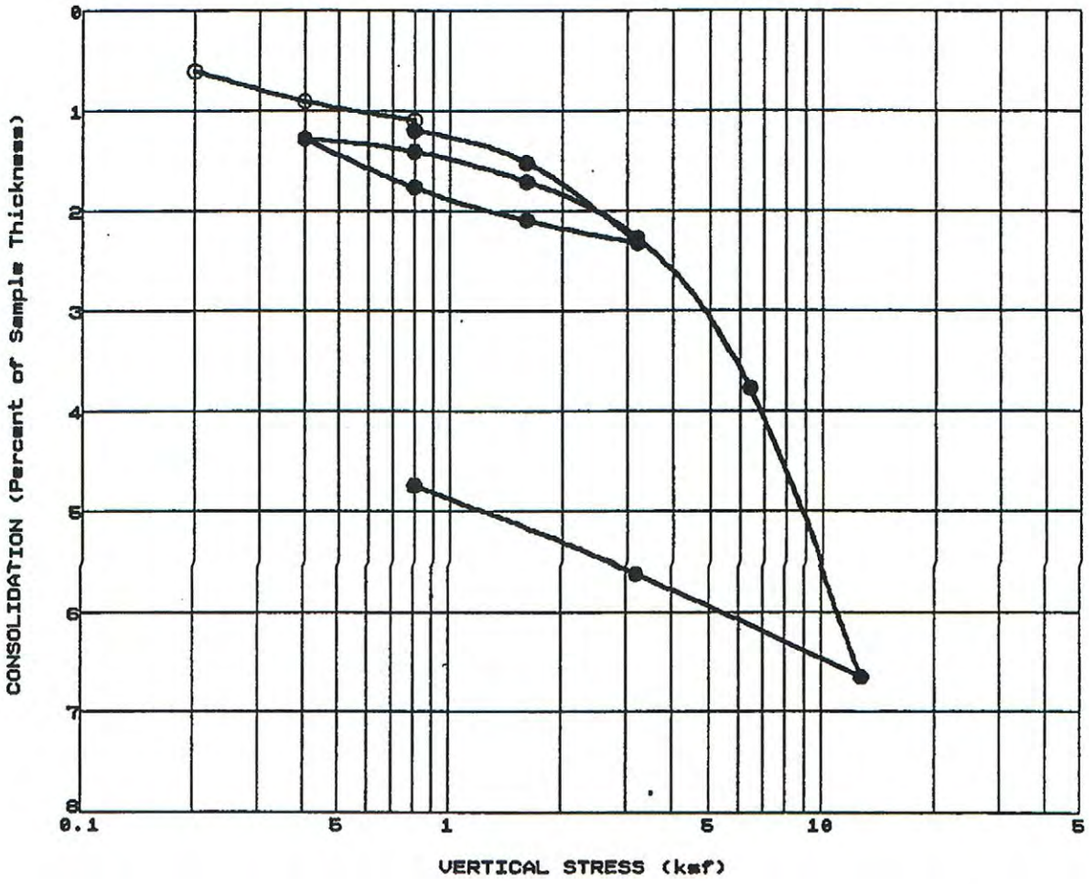
Boring No.	B-5	Initial Dry Density (pcf)	105.6
Sample No.	3	Moisture Content (%):	
Depth (feet)	12.5	Before	19.5
Soil Type	CL	After	20.8
Soil Description	Dk Brn Sandy Clay		

DRAFT

CONSOLIDATION CURVE

Project No. 10839-211-004
Project Name Rockwell
Date 10/29/96 Figure No. ____

Dames & Moore
PLATE 36



LEGEND: ○ At Field Moisture
● After Addition of Water

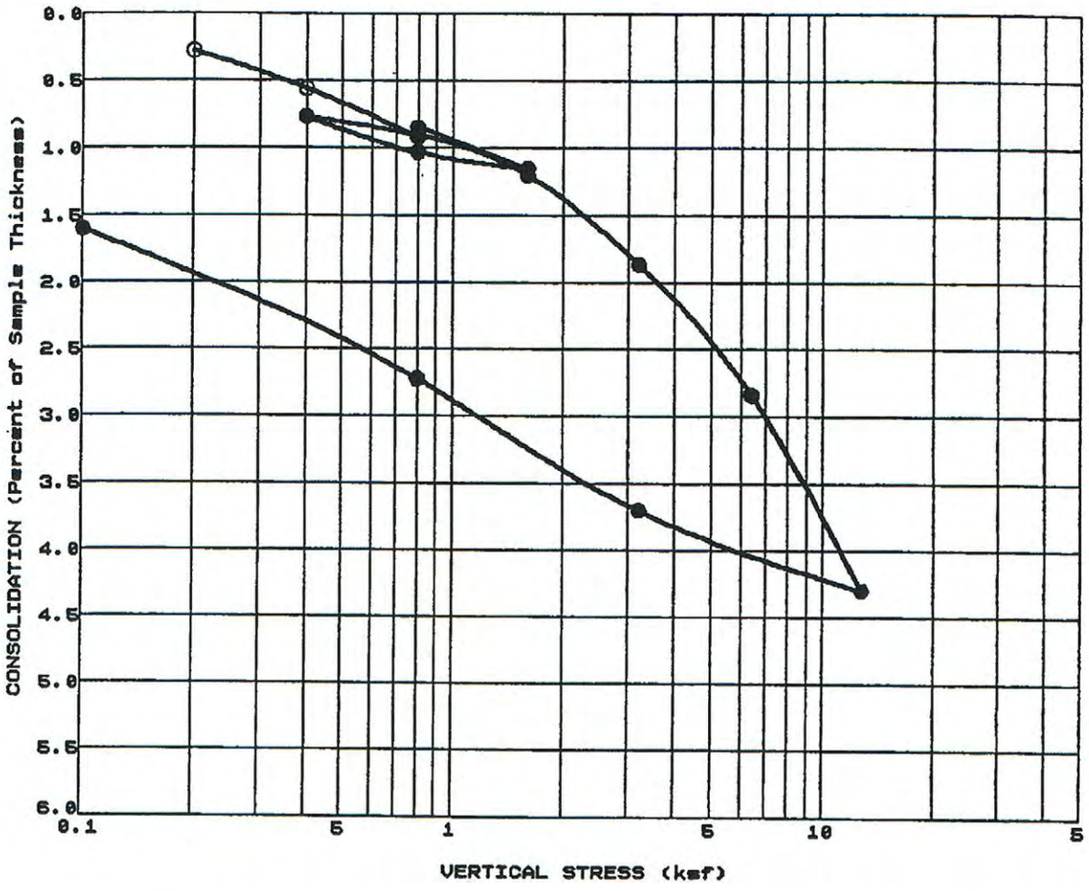
Boring No.	B-5	Initial Dry Density (pcf)	105.6
Sample No.	3	Moisture Content (%):	
Depth (feet)	12.5	Before	19.5
Soil Type	CL	After	20.8
Soil Description	Dk Brn Sandy Clay		

DRAFT

CONSOLIDATION CURVE

Project No. 10839-211-004
Project Name Rockwell
Date 10/29/96 Figure No. ____

Dames & Moore
PLATE 36



LEGEND: ○ At Field Moisture
● After Addition of Water

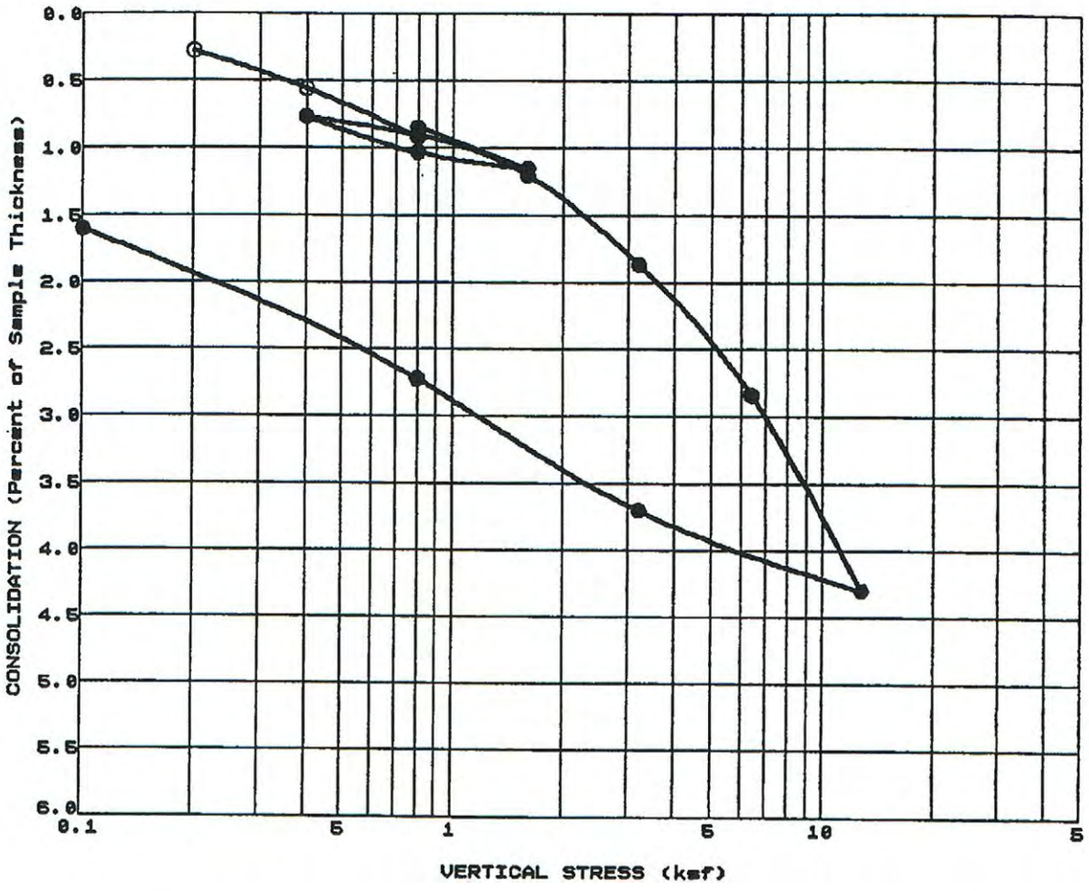
Boring No.	B-11	Initial Dry Density (pcf)	100.1
Sample No.	5R	Moisture Content (%):	
Depth (feet)	15.0	Before	18.2
Soil Type	CL	After	24.4
Soil Description	Sandy Clay		

DRAFT

CONSOLIDATION CURVE

Project No. 10839-211-004
Project Name Rockwell
Date 10/29/96 Figure No. _____

Dames & Moore
PLATE 37



LEGEND: ○ At Field Moisture
● After Addition of Water

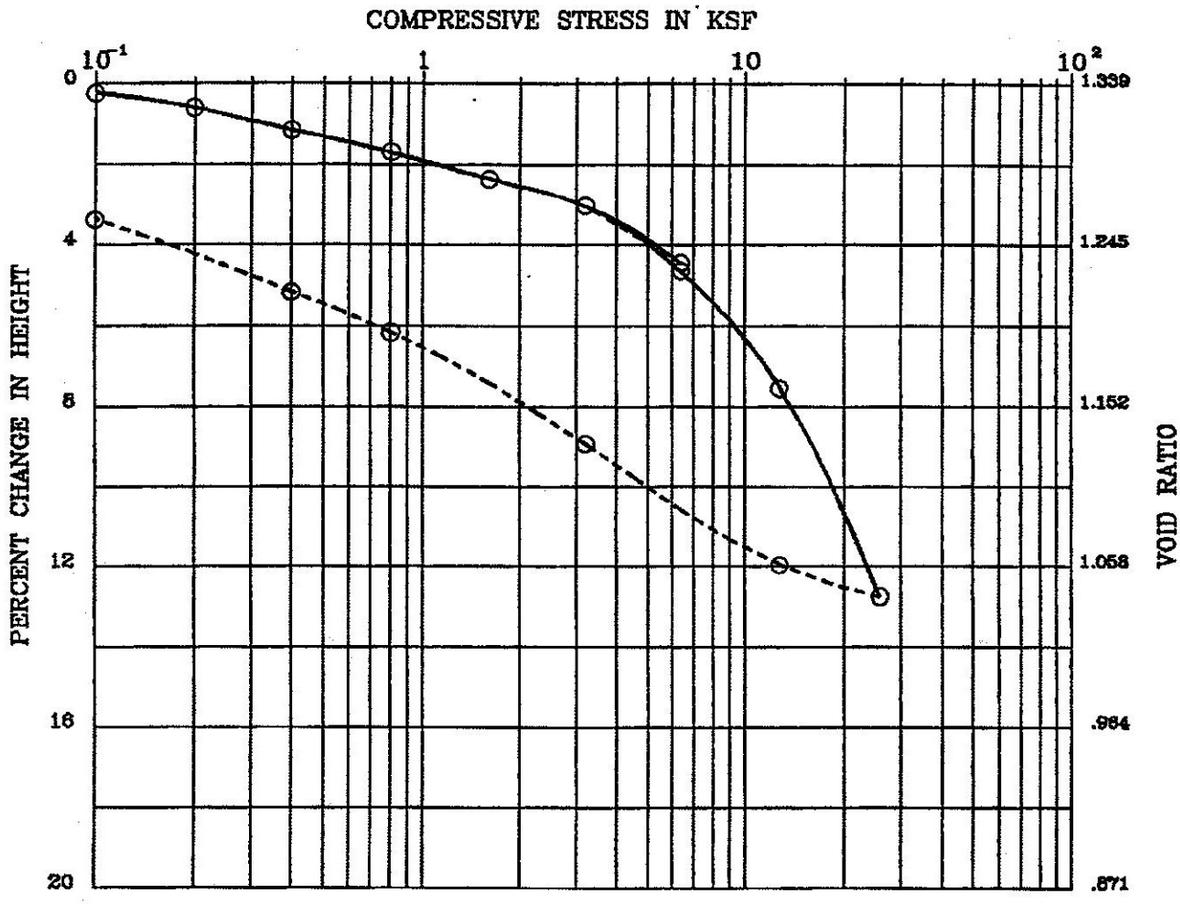
Boring No.	B-11	Initial Dry Density (pcf)	100.1
Sample No.	5R	Moisture Content (%):	
Depth (feet)	15.0	Before	18.2
Soil Type	CL	After	24.4
Soil Description	Sandy Clay		

DRAFT

CONSOLIDATION CURVE

Project No. 10839-211-004
Project Name Rockwell
Date 10/29/96 Figure No. _____

Dames & Moore
PLATE 37



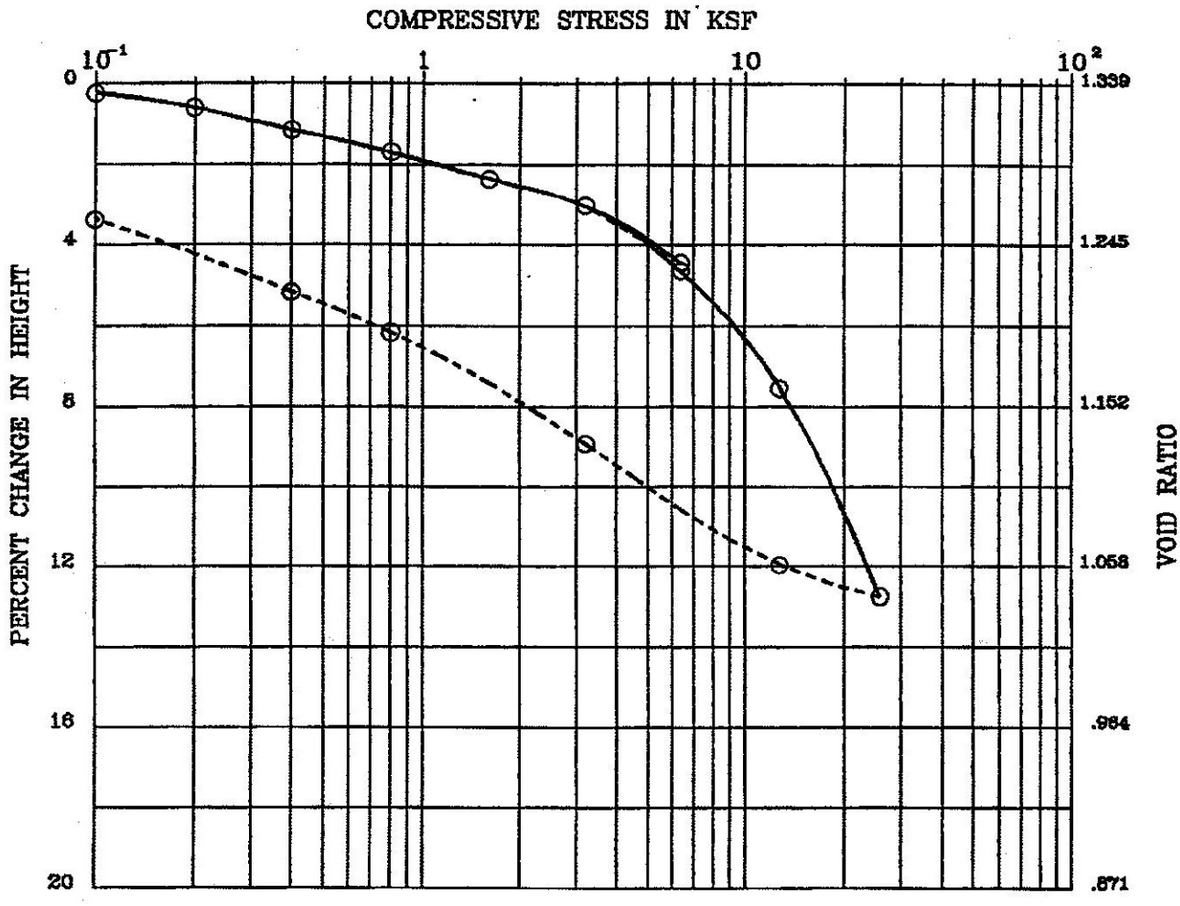
BORING	: B-18 #7	DESCRIPTION	: SILTY CLAY (CL)
DEPTH (ft)	: 40 Ft	LIQUID LIMIT	:
ASSUMED Gs	: 2.70	PLASTIC LIMIT	:

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	44.7	77.2	97	1.339
FINAL	43.6	79.8	100	1.261

FILE: B180740.PLT:

10839-218-004	ROCKWELL NEWPORT BEACH
DAMES & MOORE	CONSOLIDATION TEST PLATE 48

DRAFT



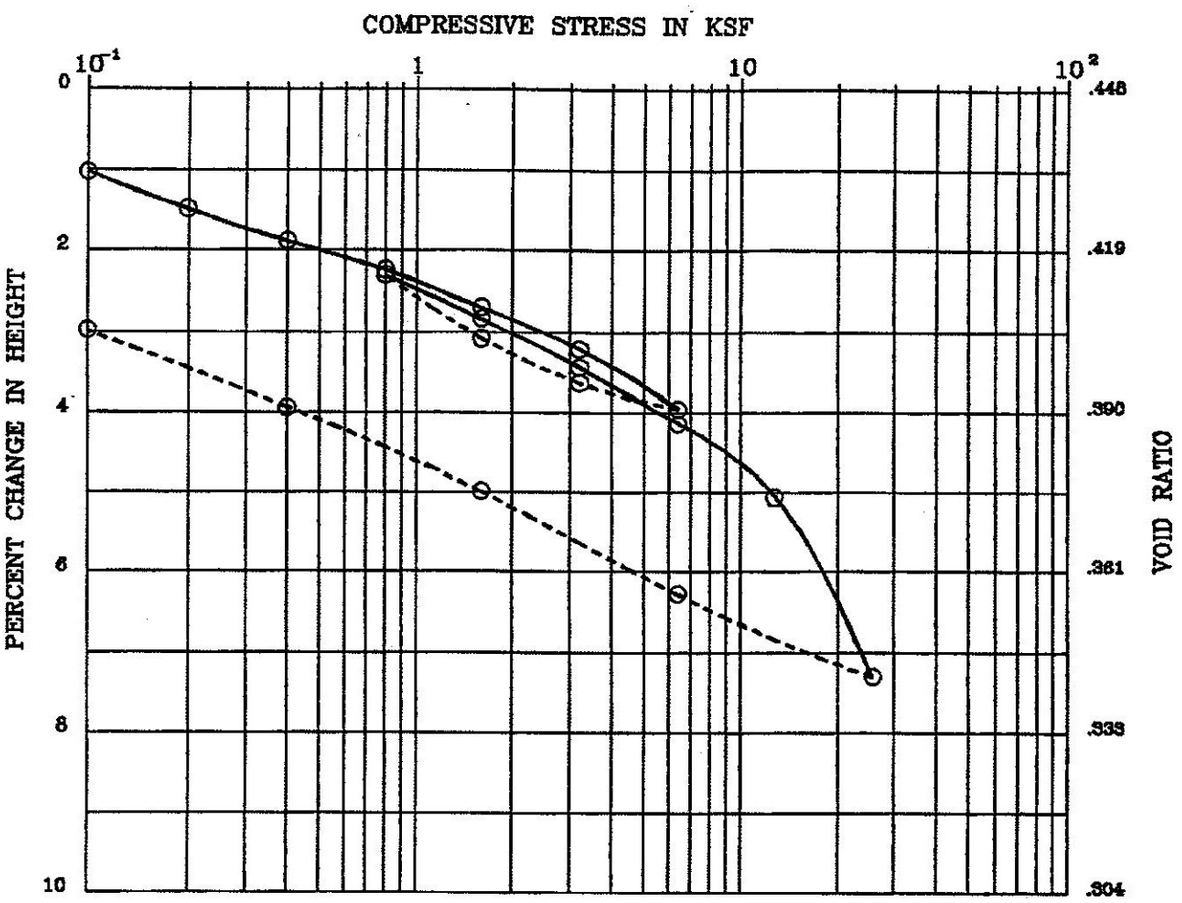
BORING	: B-18 #7	DESCRIPTION	: SILTY CLAY (CL)
DEPTH (ft)	: 40 Ft	LIQUID LIMIT	:
ASSUMED Gs	: 2.70	PLASTIC LIMIT	:

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	44.7	77.2	97	1.339
FINAL	43.6	79.8	100	1.261

FILE: B180740.PLT:

10839-218-004	ROCKWELL NEWPORT BEACH
DAMES & MOORE	CONSOLIDATION TEST PLATE 48

DRAFT



BORING	: B-19 #2	DESCRIPTION	: SILTY CLAY (CL)
DEPTH (ft)	: 15 Ft	LIQUID LIMIT	:
ASSUMED Gs	: 2.70	PLASTIC LIMIT	:

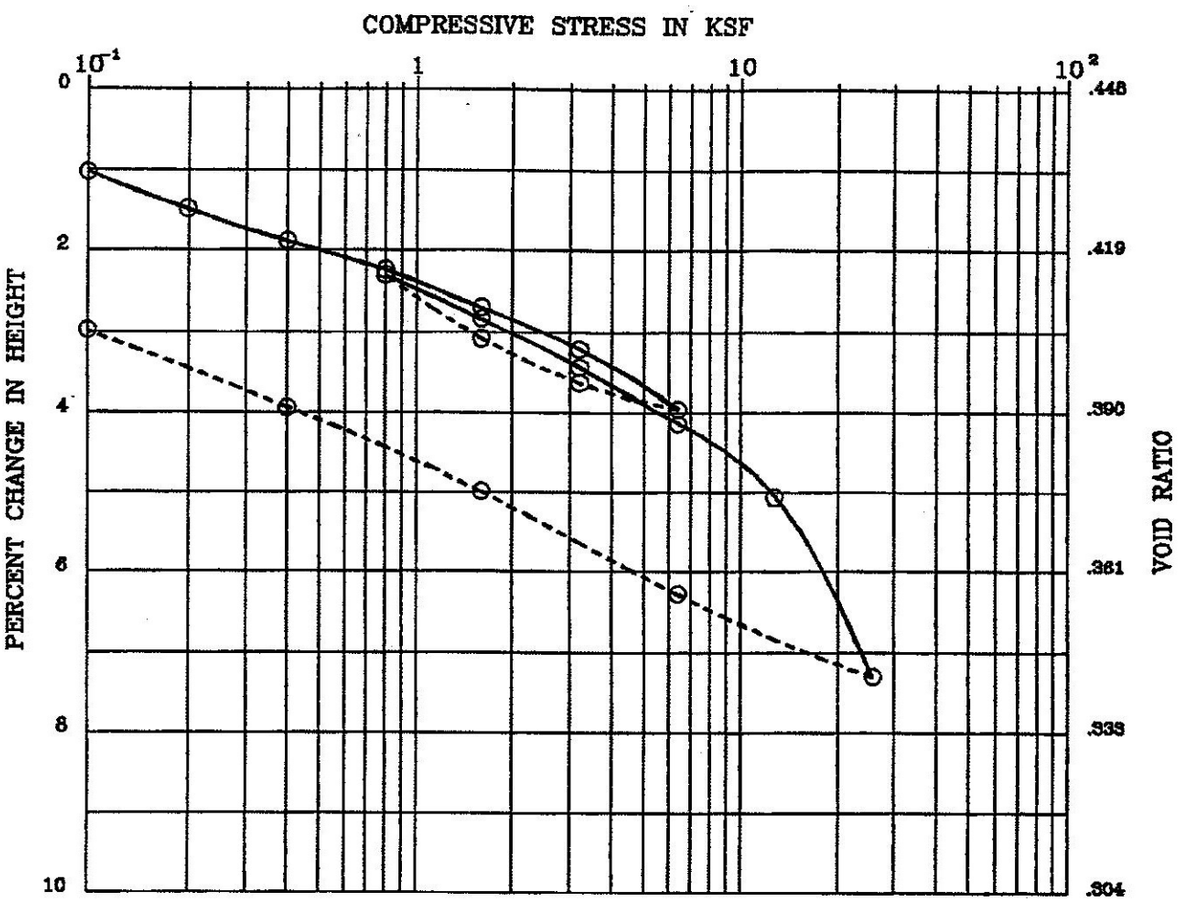
	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	11.3	116.5	68	.448
FINAL	14.9	120.1	100	.405

FILE: B190215.PLT:

10839-218-004	ROCKWELL NEWPORT BEACH
DAMES & MMORE	CONSOLIDATION TEST

DRAFT

Dames & Moore
PLATE 40



BORING	: B-19 #2	DESCRIPTION	: SILTY CLAY (CL)
DEPTH (ft)	: 15 Ft	LIQUID LIMIT	:
ASSUMED Gs	: 2.70	PLASTIC LIMIT	:

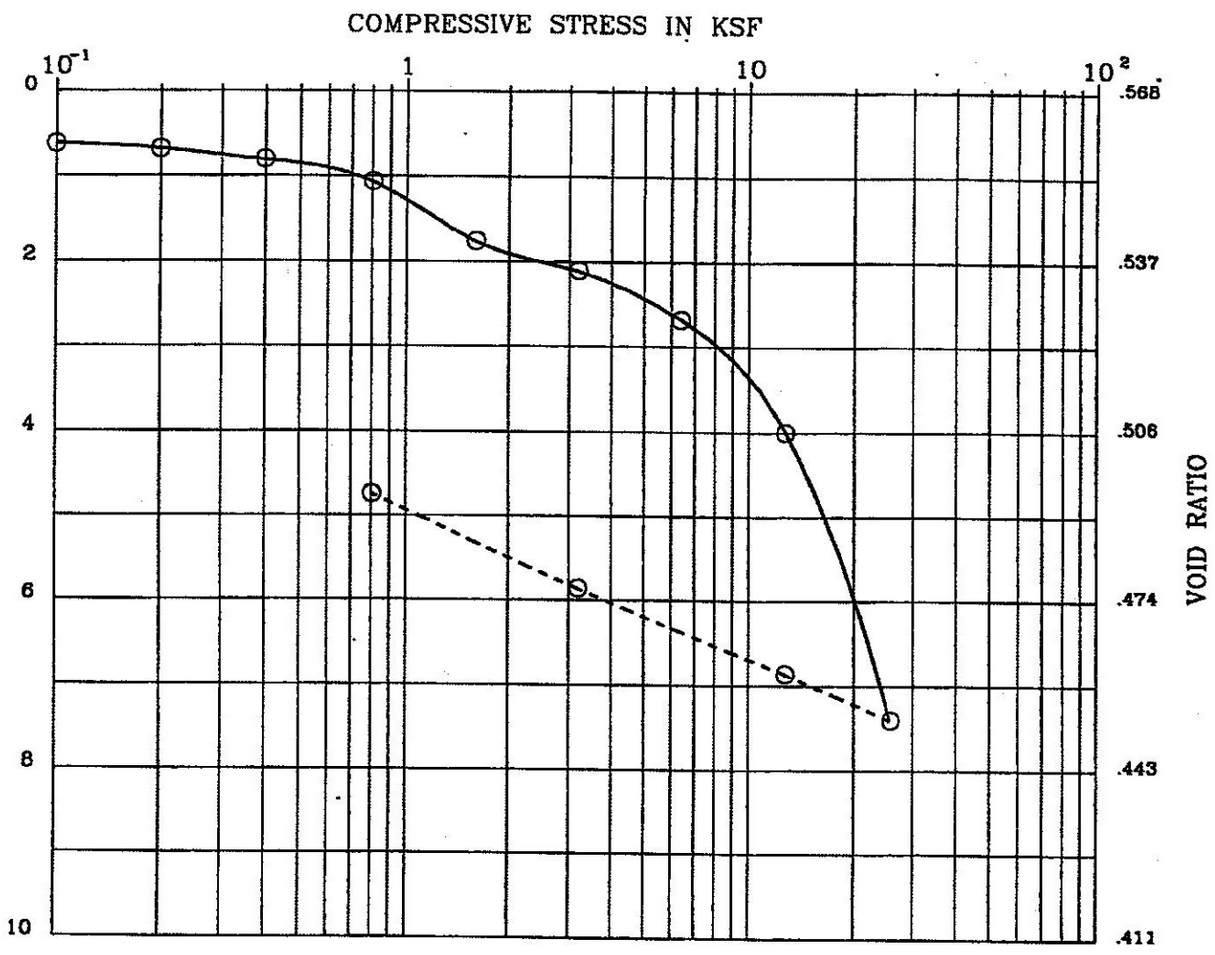
	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	11.3	116.5	68	.448
FINAL	14.9	120.1	100	.405

FILE: B190215.PLT:

10839-218-004	ROCKWELL NEWPORT BEACH
DAMES & MMORE	CONSOLIDATION TEST

DRAFT

Dames & Moore
PLATE 40



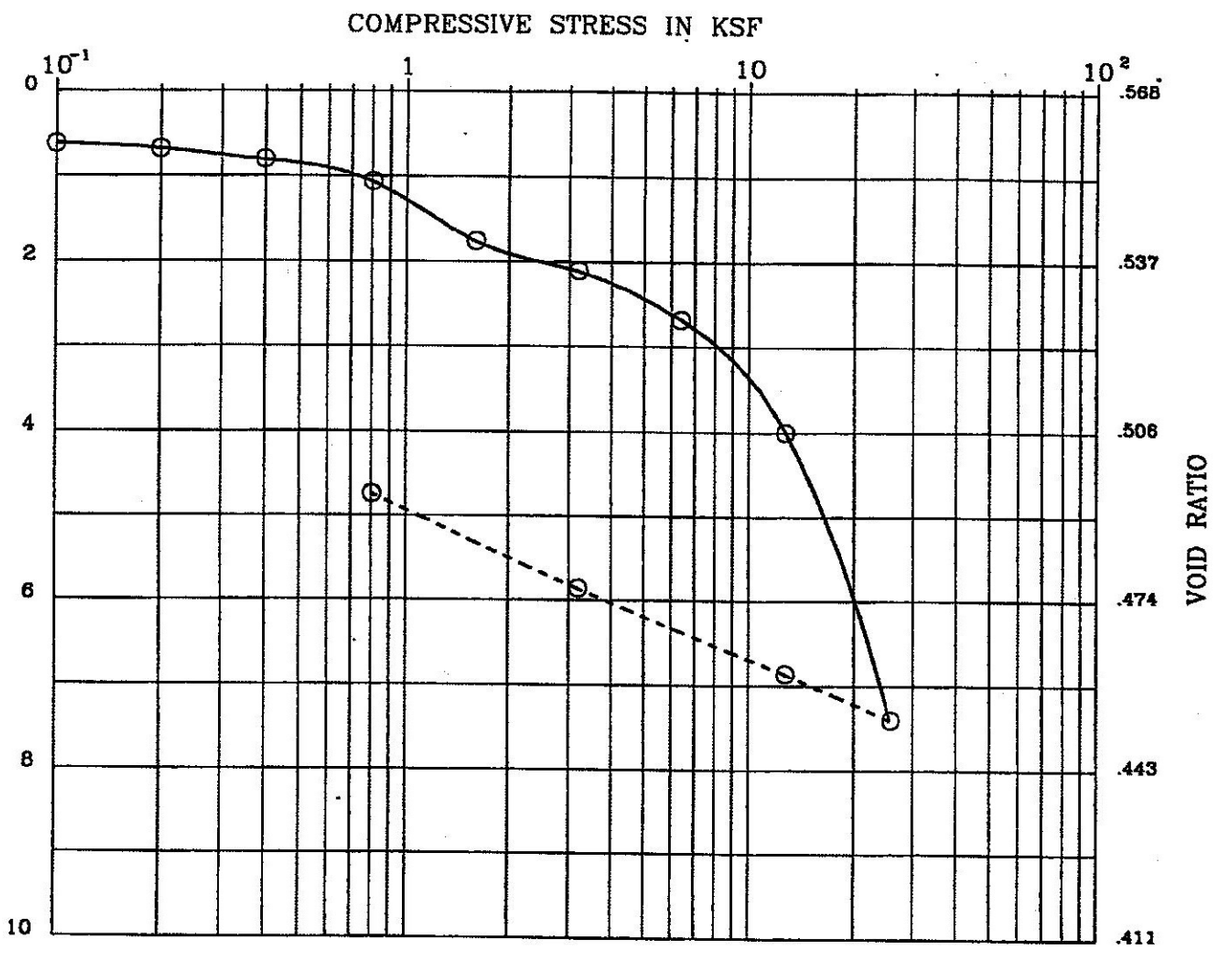
BORING	: B-20 / #3	DESCRIPTION	: DARK GRAY CLAY
DEPTH (ft)	: 20'	LIQUID LIMIT	:
SPEC. GRAVITY	: 2.73	PLASTIC LIMIT	:

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	18.6	108.8	90	.568
FINAL	20.4	109.4	100	.559

DRAFT

Remark :

10839-218-004	ROCKWELL
Dames & Moore	CONSOLIDATION TEST



BORING	: B-20 / #3	DESCRIPTION	: DARK GRAY CLAY
DEPTH (ft)	: 20'	LIQUID LIMIT	:
SPEC. GRAVITY	: 2.73	PLASTIC LIMIT	:

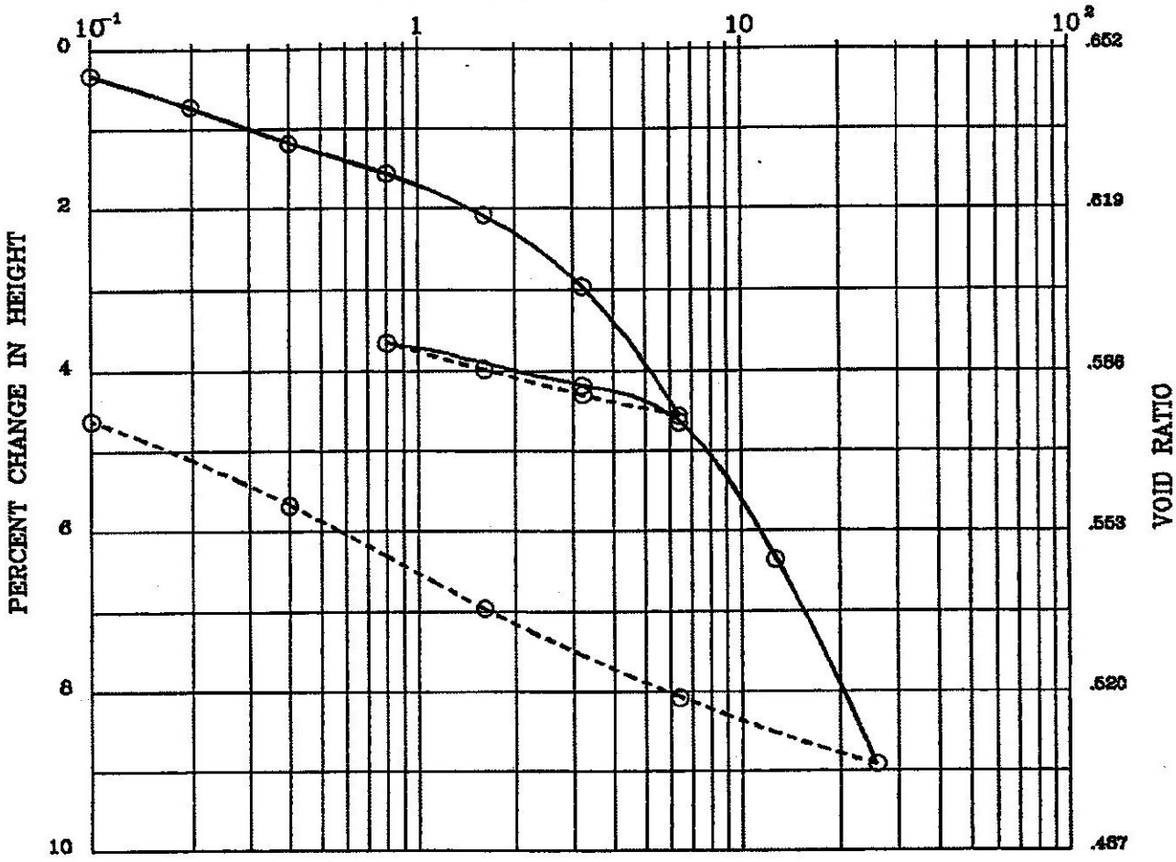
	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	18.6	108.8	90	.568
FINAL	20.4	109.4	100	.559

DRAFT

Remark :

10839-218-004	ROCKWELL
Dames & Moore	CONSOLIDATION TEST

COMPRESSIVE STRESS IN KSF



BORING	: B-21 #7	DESCRIPTION	: SILTY CLAY (CL)
DEPTH (ft)	: 40 Ft	LIQUID LIMIT	:
ASSUMED Gs	: 2.70	PLASTIC LIMIT	:

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	23.0	102.6	96	.652
FINAL	22.0	106.1	100	.598

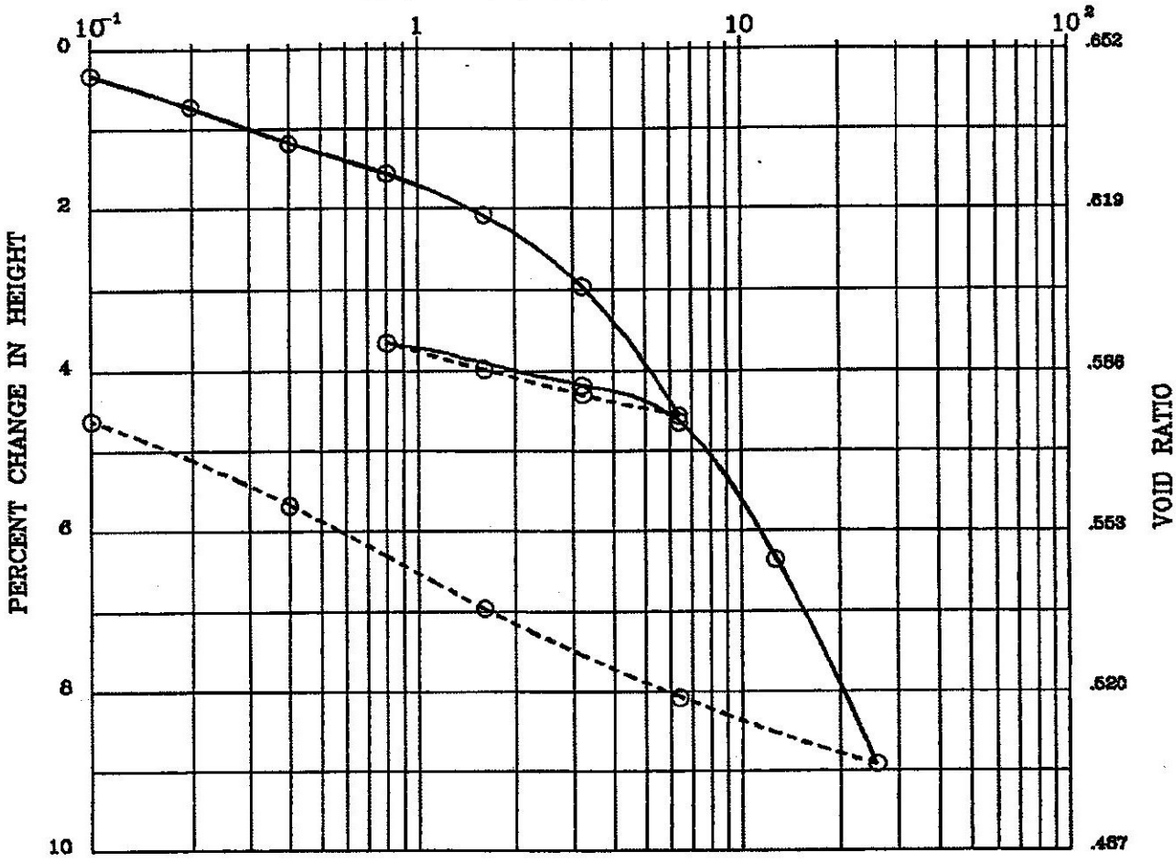
FILE: B210740.PLT

10839-218-004	ROCKWELL NEWPORT BEACH
DAMES & MOORE	CONSOLIDATION TEST

DRAFT

Dames & Moore
PLATE 42

COMPRESSIVE STRESS IN KSF



BORING	: B-21 #7	DESCRIPTION	: SILTY CLAY (CL)
DEPTH (ft)	: 40 Ft	LIQUID LIMIT	:
ASSUMED Gs	: 2.70	PLASTIC LIMIT	:

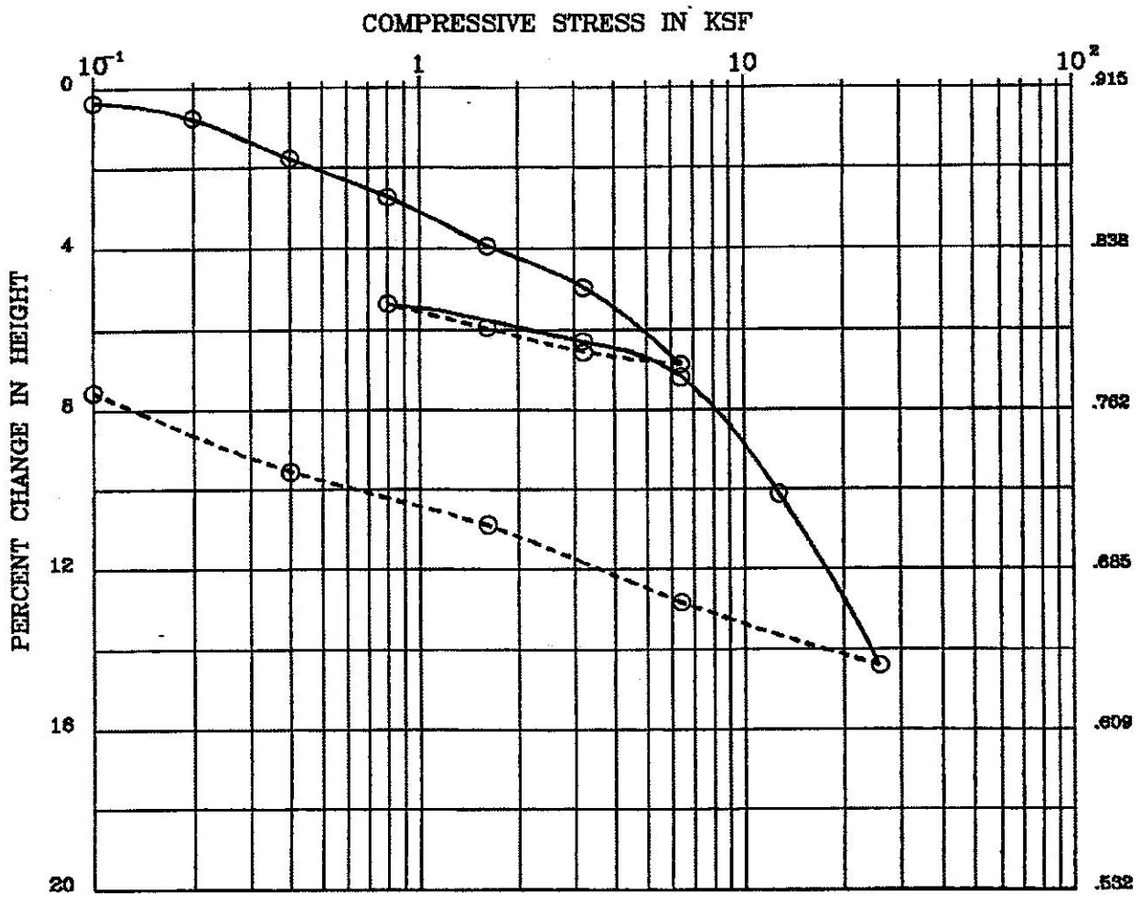
	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	23.0	102.6	96	.652
FINAL	22.0	106.1	100	.598

FILE: B210740.PLT

10839-218-004	ROCKWELL NEWPORT BEACH
DAMES & MOORE	CONSOLIDATION TEST

DRAFT

Dames & Moore
PLATE 42



BORING	: B-22 #3	DESCRIPTION	: SILTY CLAY (CL)
DEPTH (ft)	: 20 Ft	LIQUID LIMIT	:
ASSUMED Gs	: 2.70	PLASTIC LIMIT	:

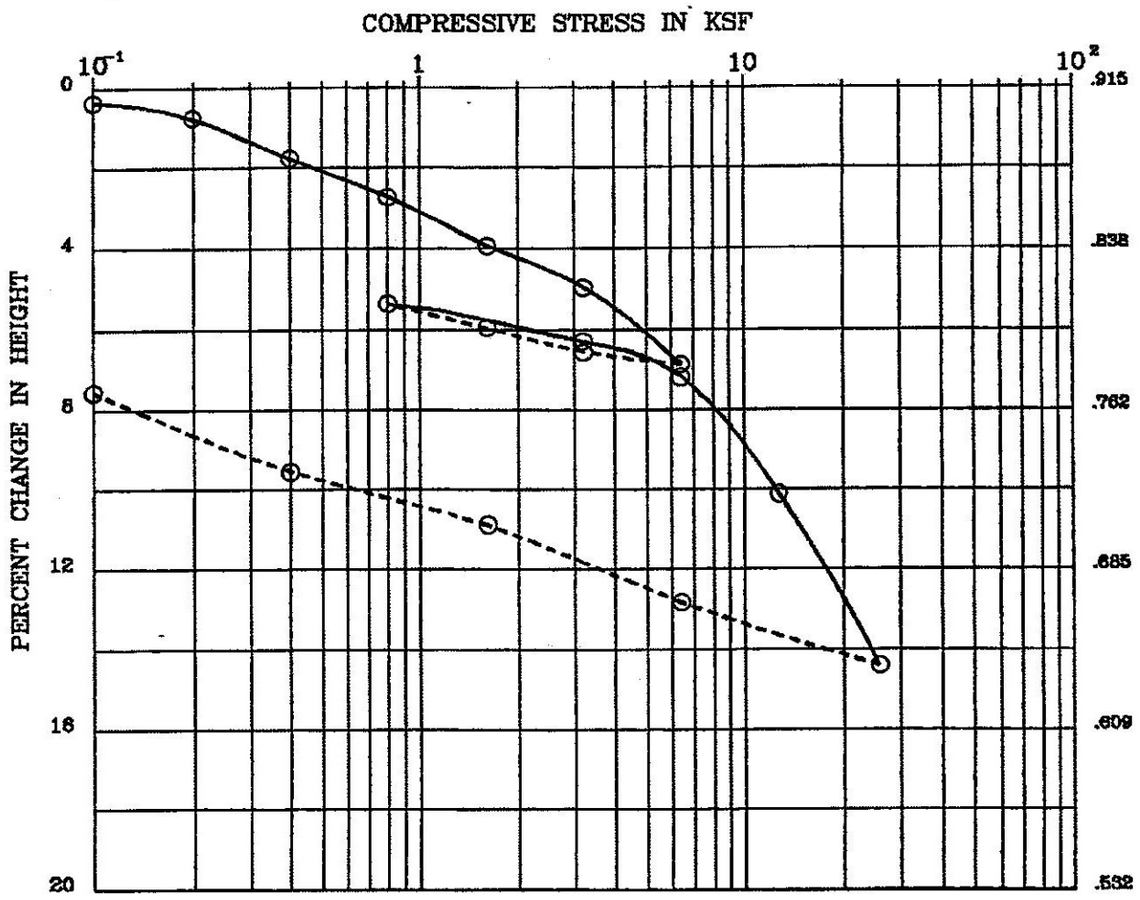
	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	30.0	88.2	89	.915
FINAL	28.5	95.4	100	.771

FILE: B230320.PLT

10839-218-004	ROCKWELL NEWPORT BEACH
DAMES & MOORE	CONSOLIDATION TEST

DRAFT

Dames & Moore
PLATE 43



BORING	: B-22 #3	DESCRIPTION	: SILTY CLAY (CL)
DEPTH (ft)	: 20 Ft	LIQUID LIMIT	:
ASSUMED Gs	: 2.70	PLASTIC LIMIT	:

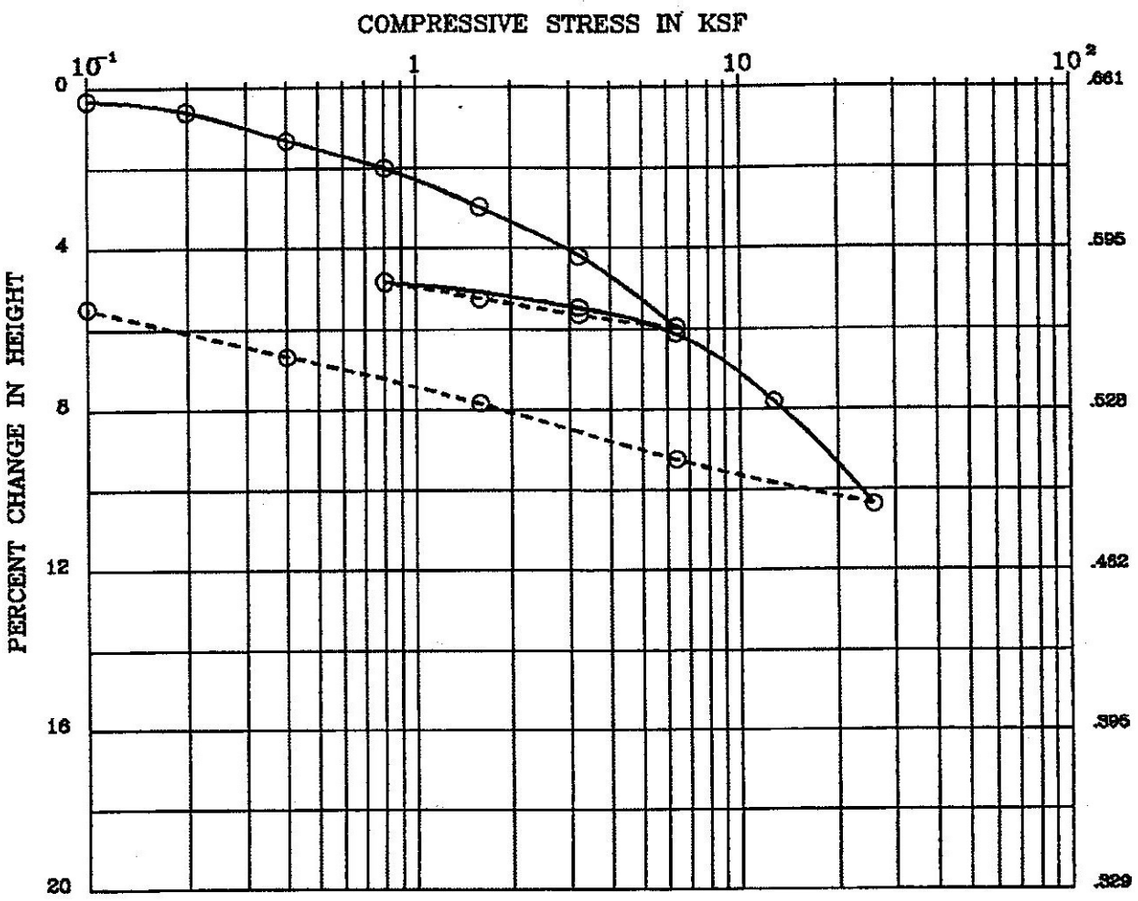
	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	30.0	88.2	89	.915
FINAL	28.5	95.4	100	.771

FILE: B230320.PLT

10839-218-004	ROCKWELL NEWPORT BEACH
DAMES & MOORE	CONSOLIDATION TEST

DRAFT

Dames & Moore
PLATE 43



BORING	: B-22 #5	DESCRIPTION	: SILTY CLAY (CL)
DEPTH (ft)	: 30 Ft	LIQUID LIMIT	:
ASSUMED Gs	: 2.70	PLASTIC LIMIT	:

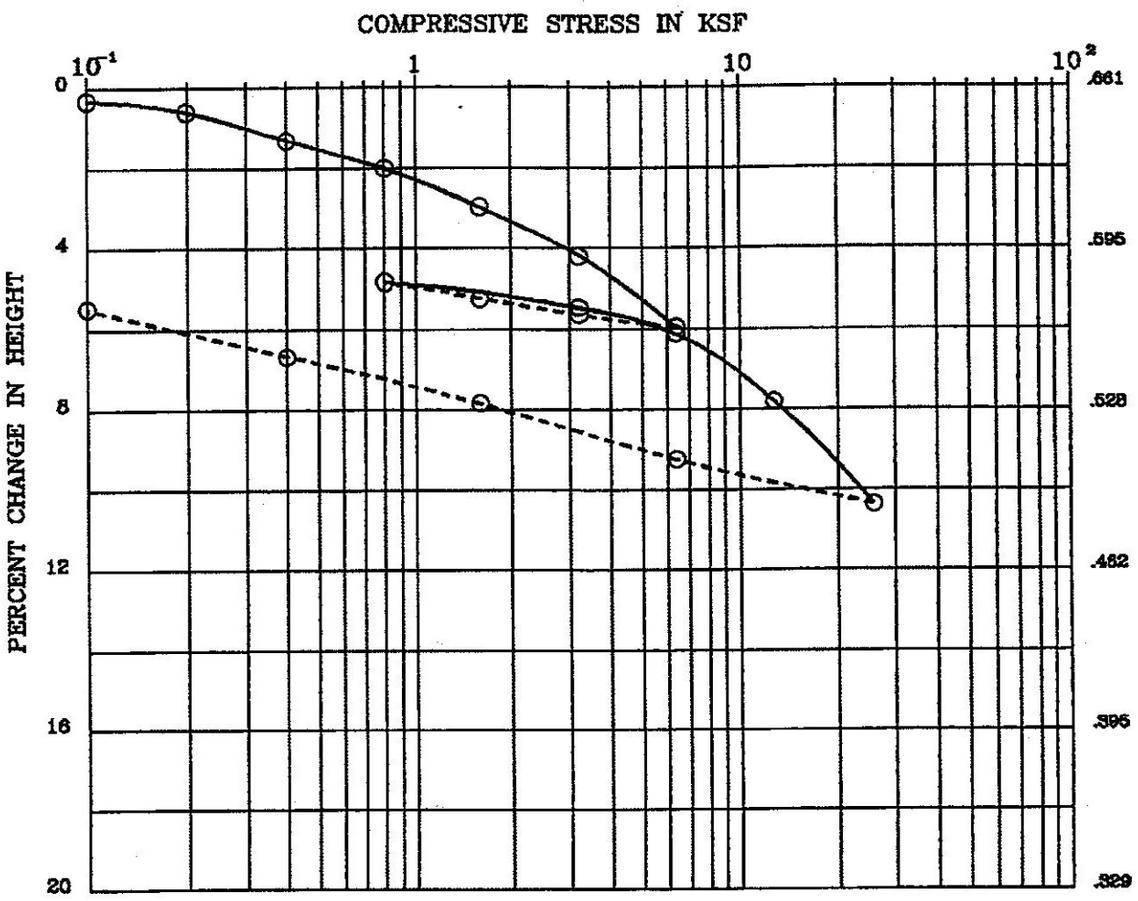
	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	22.6	101.5	93	.661
FINAL	21.1	105.0	100	.606

FILE: B220530.PLT

10639-218-004	ROCKWELL NEWPORT BEACH
DAMES & MOORE	CONSOLIDATION TEST

DRAFT

Dames & Moore
PLATE 44



BORING	: B-22 #5	DESCRIPTION	: SILTY CLAY (CL)
DEPTH (ft)	: 30 Ft	LIQUID LIMIT	:
ASSUMED Gs	: 2.70	PLASTIC LIMIT	:

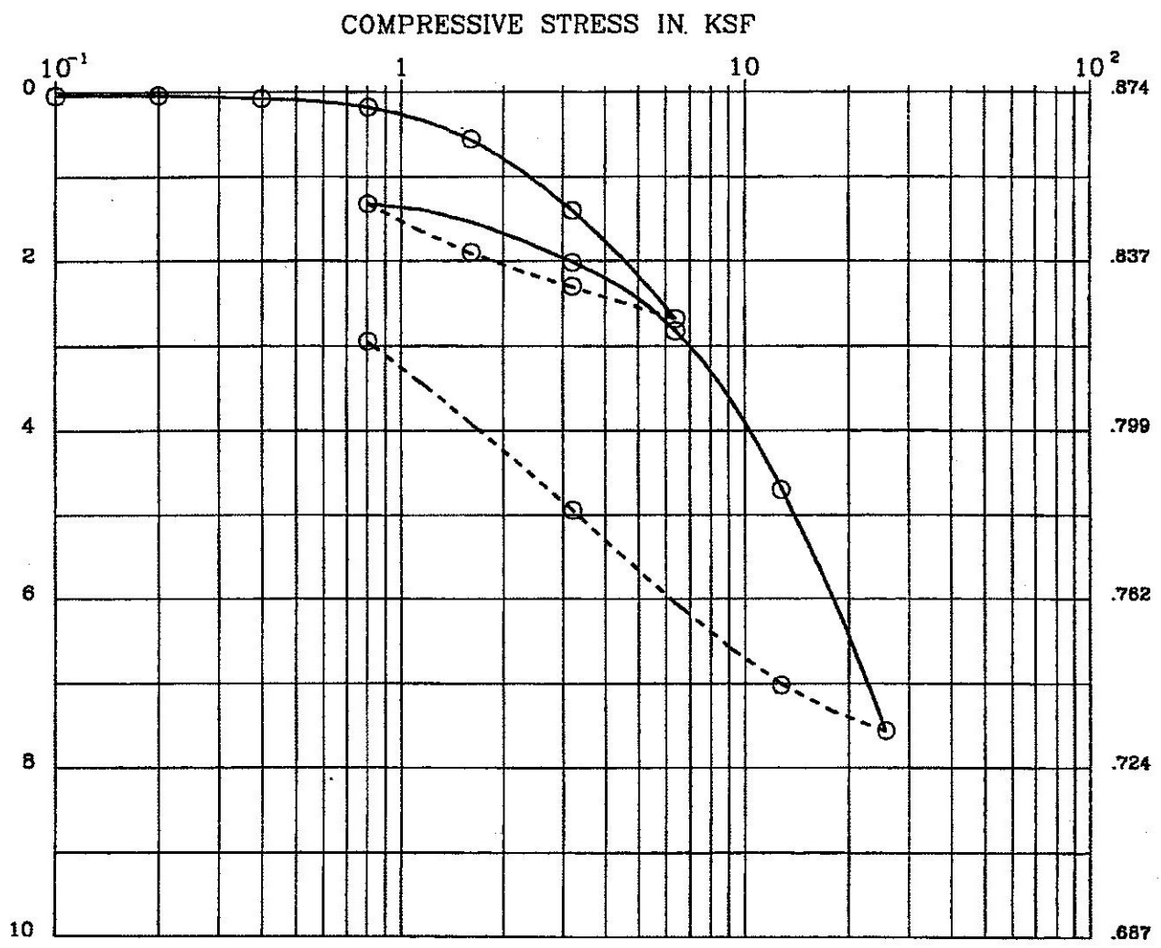
	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	22.6	101.5	93	.661
FINAL	21.1	105.0	100	.606

FILE: B220530.PLT

10639-218-004	ROCKWELL NEWPORT BEACH
DAMES & MOORE	CONSOLIDATION TEST

DRAFT

Dames & Moore
PLATE 44



BORING : B-23 / #5
DEPTH (ft) : 30'
SPEC. GRAVITY : 2.70

DESCRIPTION : OLIVE SILTY CLAY (CL)
LIQUID LIMIT :
PLASTIC LIMIT :

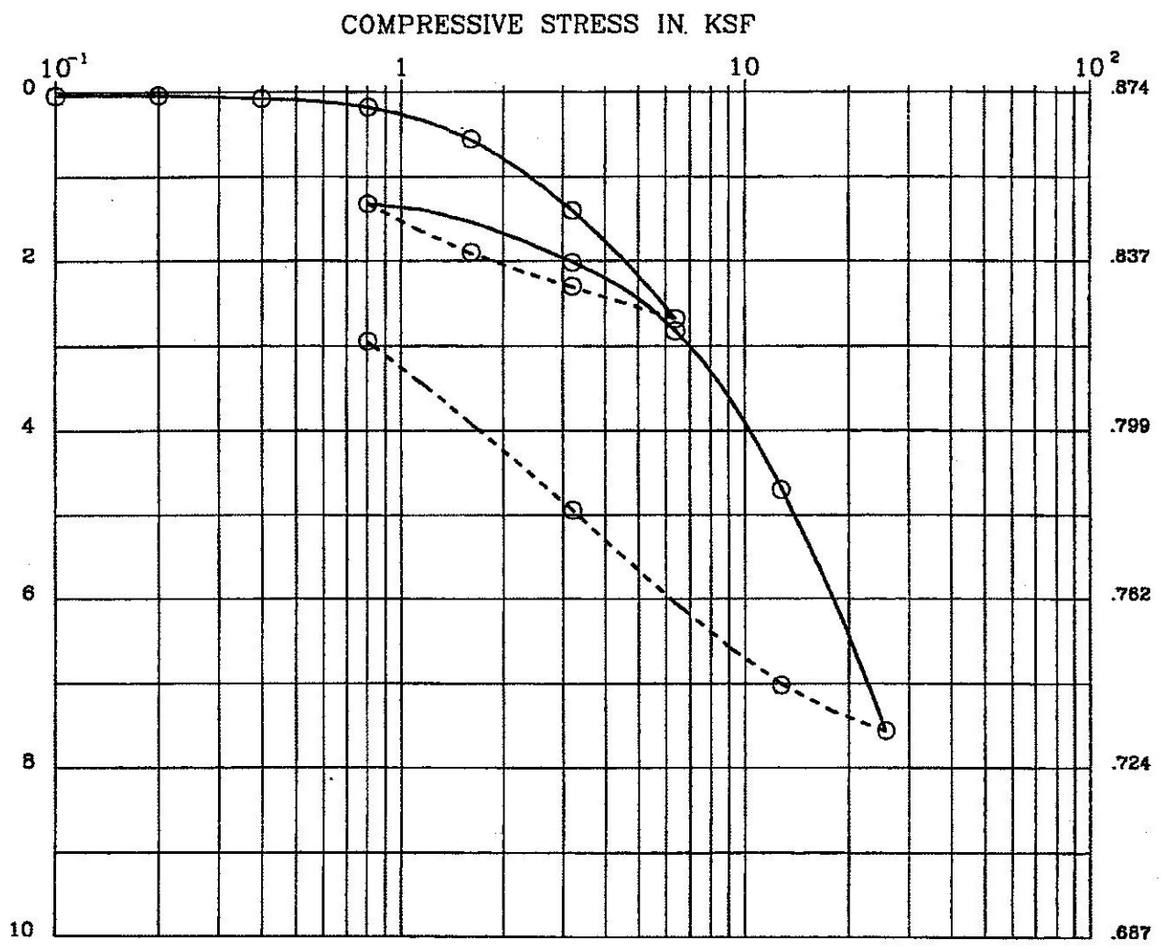
	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	30.2	90.0	93	.874
FINAL	28.2	94.4	97	.786

DRAFT

Remark :

10839-218-004	ROCKWELL
Dames & Moore	CONSOLIDATION TEST

Dames & Moore
PLATE 45



BORING : B-23 / #5
DEPTH (ft) : 30'
SPEC. GRAVITY : 2.70

DESCRIPTION : OLIVE SILTY CLAY (CL)
LIQUID LIMIT :
PLASTIC LIMIT :

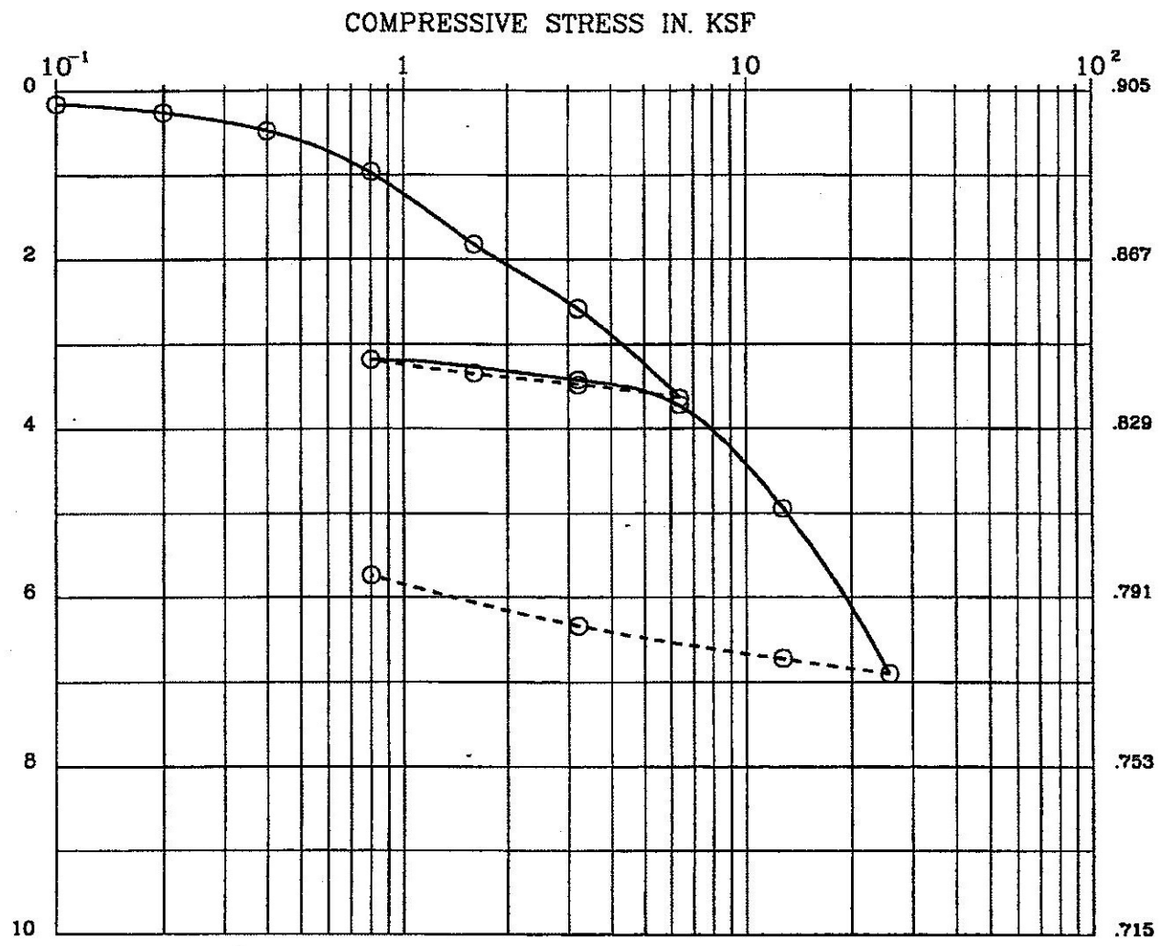
	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	30.2	90.0	93	.874
FINAL	28.2	94.4	97	.786

DRAFT

Remark :

10839-218-004	ROCKWELL
Dames & Moore	CONSOLIDATION TEST

Dames & Moore
PLATE 45



BORING	: B-24 / #4	DESCRIPTION	: LIGHT BROWN CLAYEY SAND (SC)
DEPTH (ft)	: 25'	LIQUID LIMIT	:
SPEC. GRAVITY	: 3.00	PLASTIC LIMIT	:

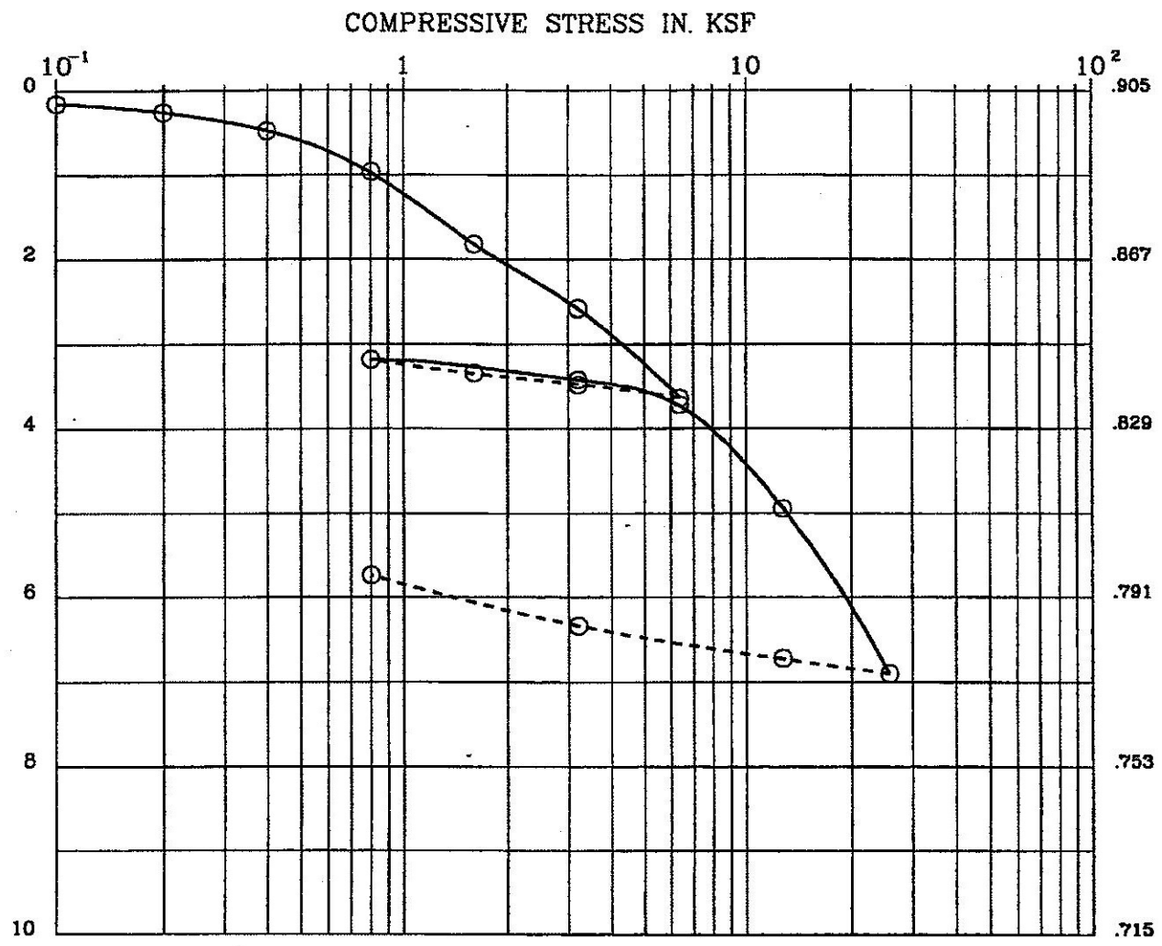
	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	24.2	98.4	81	.905
FINAL	28.4	101.1	100	.854

DRAFT

Remark :

10839-218-004	ROCKWELL
Dames & Moore	CONSOLIDATION TEST

Dames & Moore
PLATE 46



BORING	: B-24 / #4	DESCRIPTION	: LIGHT BROWN CLAYEY SAND (SC)
DEPTH (ft)	: 25'	LIQUID LIMIT	:
SPEC. GRAVITY	: 3.00	PLASTIC LIMIT	:

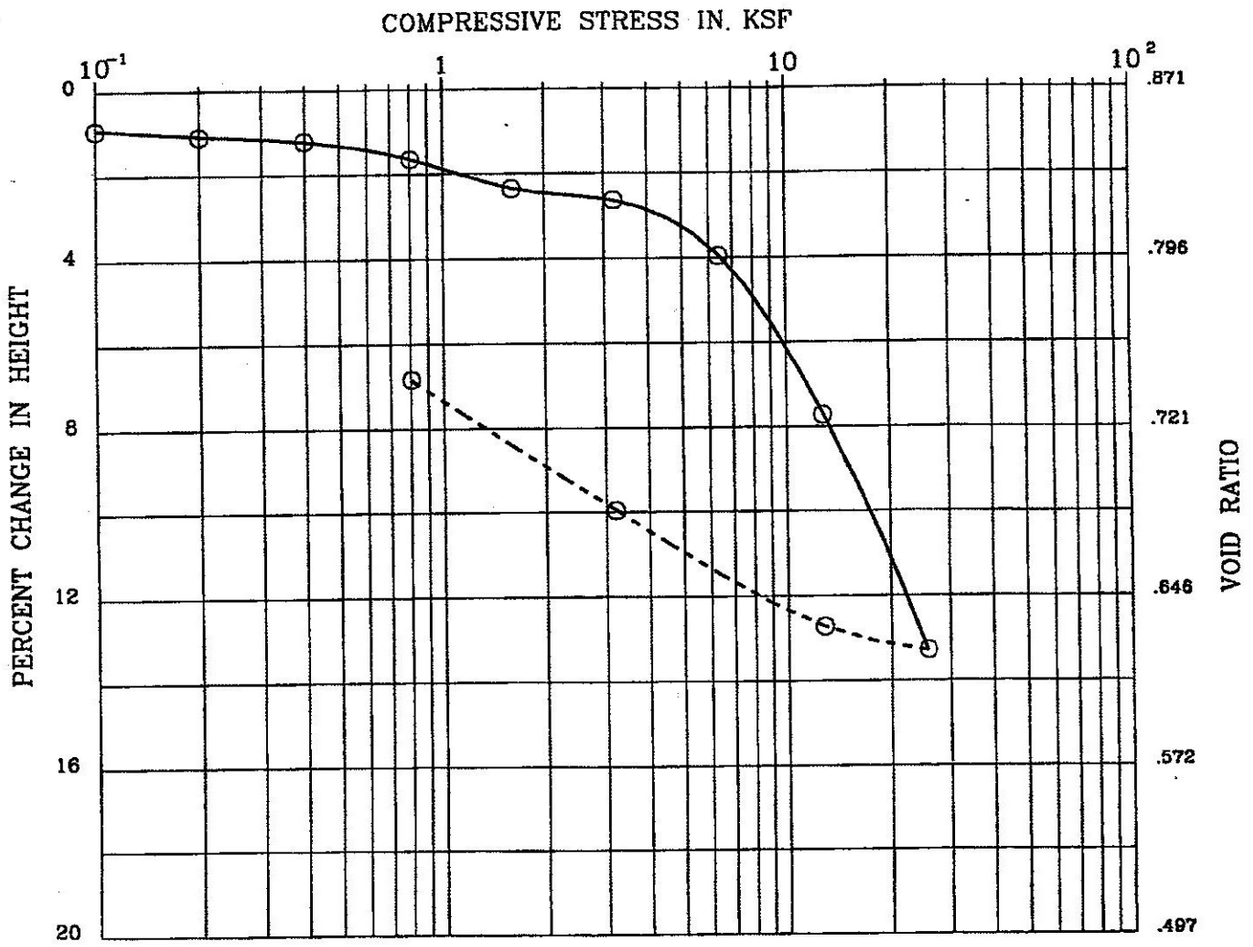
	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	24.2	98.4	81	.905
FINAL	28.4	101.1	100	.854

DRAFT

Remark :

10839-218-004	ROCKWELL
Dames & Moore	CONSOLIDATION TEST

Dames & Moore
PLATE 46

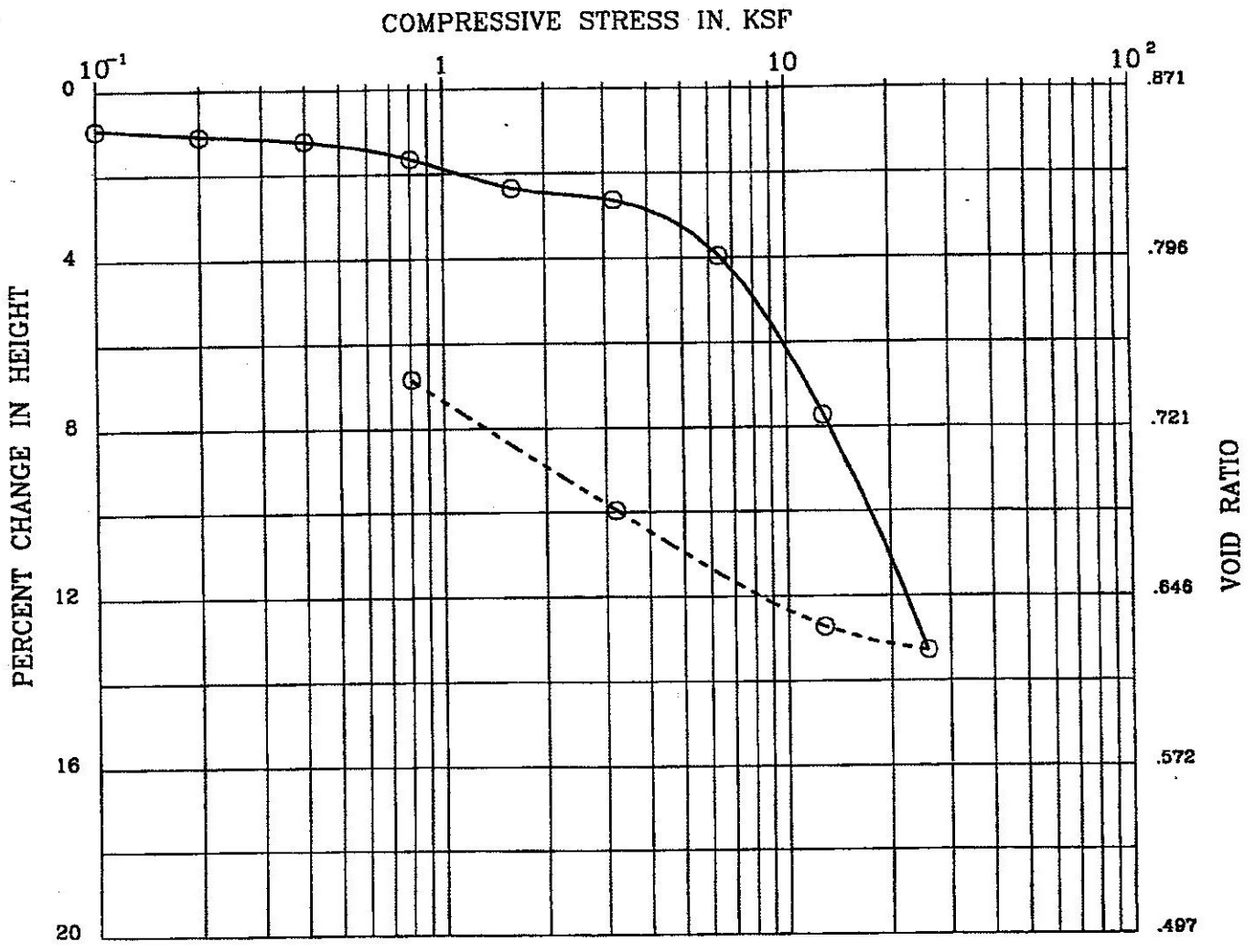


BORING	: B- 24 / #6	DESCRIPTION	: DARK GRAY CLAY
DEPTH (ft)	: 35'	LIQUID LIMIT	:
SPEC. GRAVITY	: 2.70	PLASTIC LIMIT	:

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	30.0	90.2	93	.871
FINAL	26.8	96.7	98	.744

Remark :

10839-218-004	ROCKWELL
Dames & Moore	CONSOLIDATION TEST



BORING	: B- 24 / #6	DESCRIPTION	: DARK GRAY CLAY
DEPTH (ft)	: 35'	LIQUID LIMIT	:
SPEC. GRAVITY	: 2.70	PLASTIC LIMIT	:

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	30.0	90.2	93	.871
FINAL	26.8	96.7	98	.744

Remark :

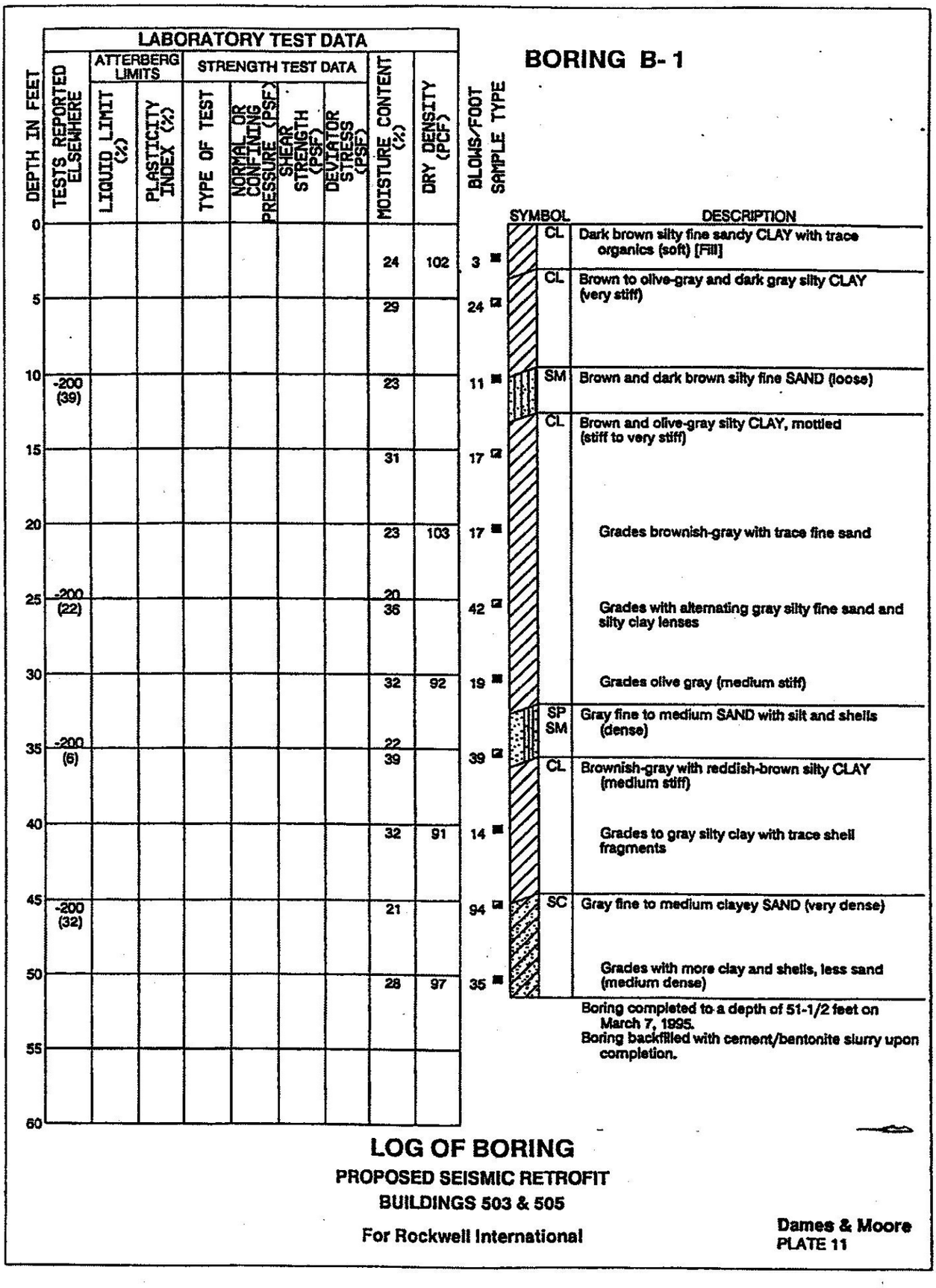
10839-218-004	ROCKWELL
Dames & Moore	CONSOLIDATION TEST

APPENDIX A

PREVIOUS LOG OF BORING
(Dames & Moore 1995 Investigation)

APPENDIX A

PREVIOUS LOG OF BORING
(Dames & Moore 1995 Investigation)



LOG OF BORING

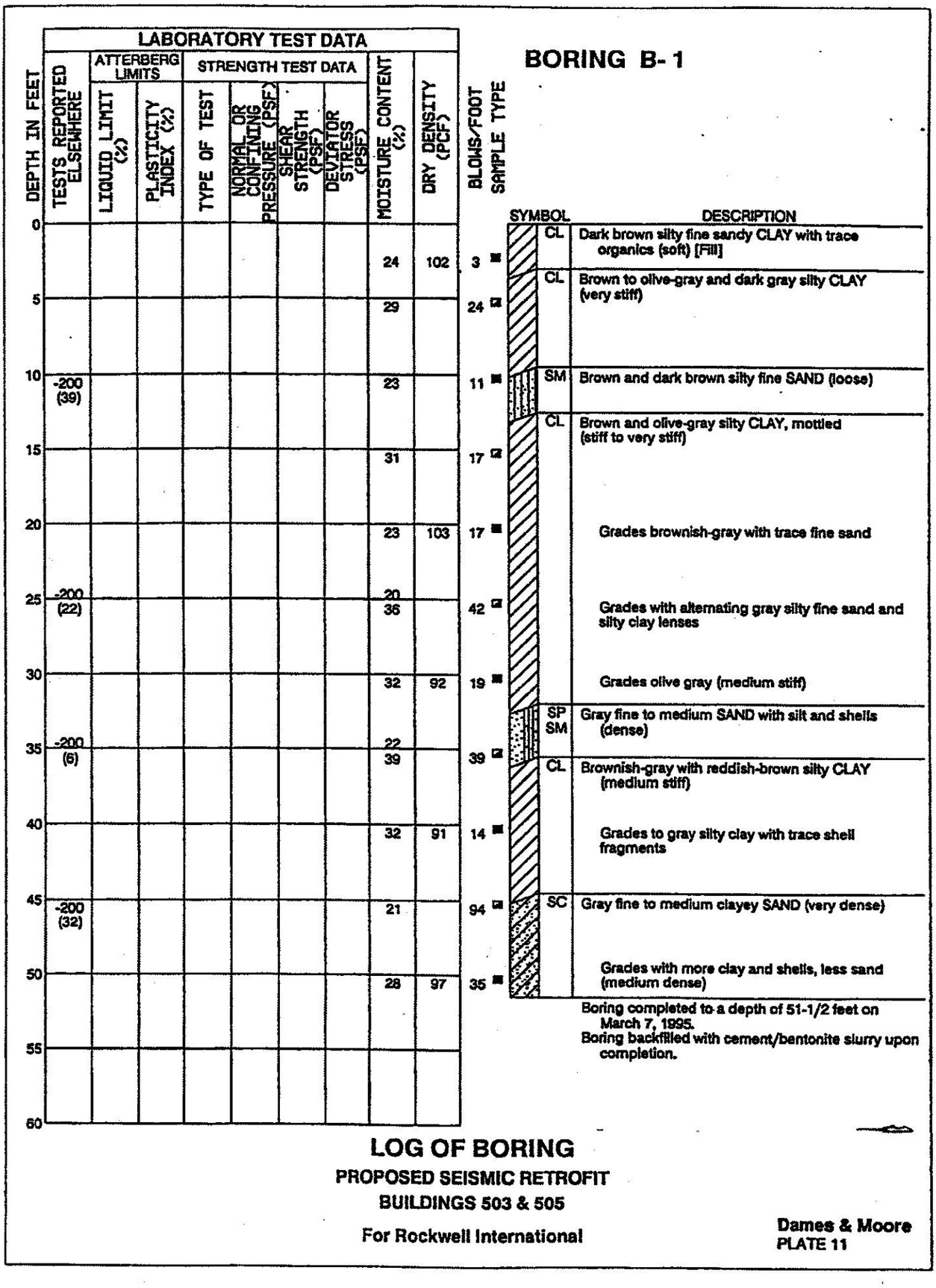
PROPOSED SEISMIC RETROFIT

BUILDINGS 503 & 505

For Rockwell International

Dames & Moore

PLATE 11



LOG OF BORING

PROPOSED SEISMIC RETROFIT

BUILDINGS 503 & 505

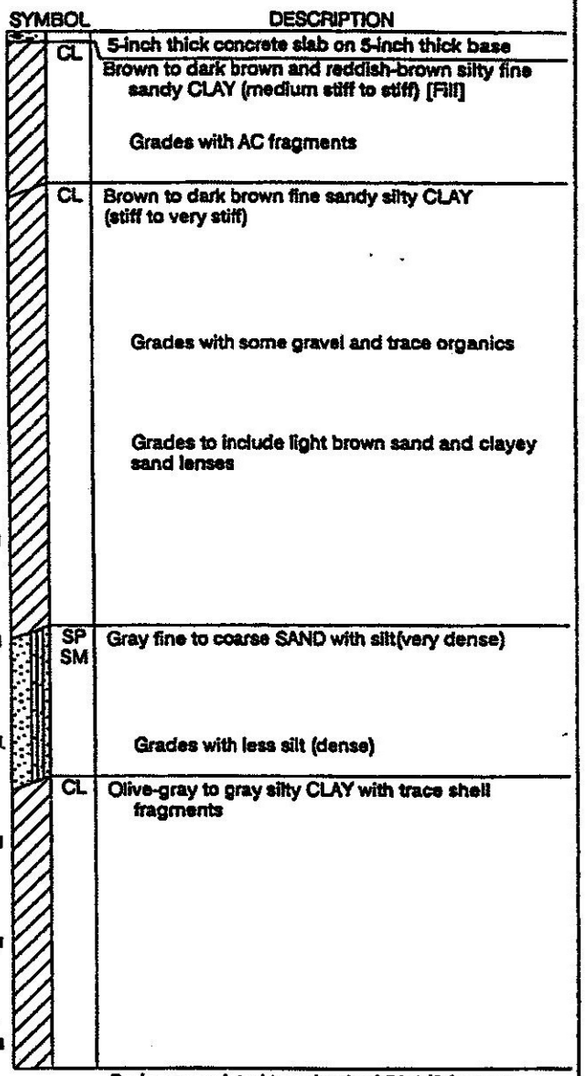
For Rockwell International

Dames & Moore

PLATE 11

BORING B-2

DEPTH IN FEET	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT	SAMPLE TYPE
0	-200 (71)							21		8	
5	-200 (54)							16	117	9	
10	-200 (58)							16		19	
15	-200 (74)							21	107	19	
20	-200 (39)							21		25	
25								26	100	20	
30	-200 (9)							16		87	
35	-200 (3)							21	106	57	
40								45		16	
45								45	79	10	
50								38		17	
55											
60											



SYMBOL	DESCRIPTION
	5-inch thick concrete slab on 5-inch thick base
CL	Brown to dark brown and reddish-brown silty fine sandy CLAY (medium stiff to stiff) [Fill]
	Grades with AC fragments
CL	Brown to dark brown fine sandy silty CLAY (stiff to very stiff)
	Grades with some gravel and trace organics
	Grades to include light brown sand and clayey sand lenses
SP SM	Gray fine to coarse SAND with silt(very dense)
	Grades with less silt (dense)
CL	Olive-gray to gray silty CLAY with trace shell fragments

Boring completed to a depth of 51-1/2 feet on March 7, 1995
Boring backfilled with cement/bentonite slurry upon completion.

LOG OF BORING

PROPOSED SEISMIC RETROFIT

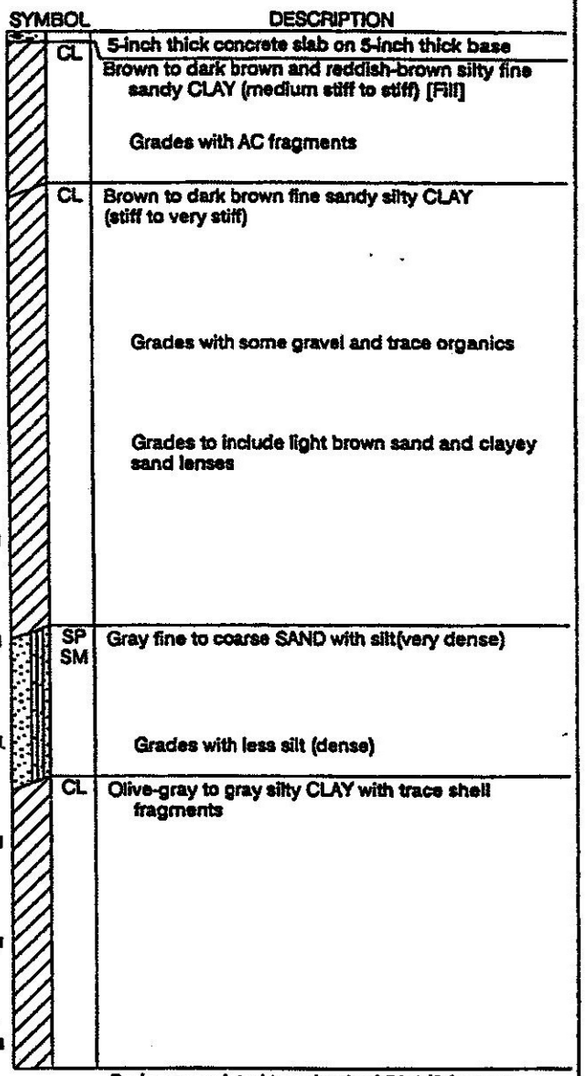
BUILDINGS 503 & 505

For Rockwell International

Dames & Moore
PLATE 12

BORING B-2

DEPTH IN FEET	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT	SAMPLE TYPE
0	-200 (71)							21		8	
5	-200 (54)							16	117	9	
10	-200 (58)							16		19	
15	-200 (74)							21	107	19	
20	-200 (39)							21		25	
25								26	100	20	
30	-200 (9)							16		87	
35	-200 (3)							21	106	57	
40								45		16	
45								45	79	10	
50								38		17	
55											
60											



SYMBOL	DESCRIPTION
	5-inch thick concrete slab on 5-inch thick base
CL	Brown to dark brown and reddish-brown silty fine sandy CLAY (medium stiff to stiff) [Fill]
	Grades with AC fragments
CL	Brown to dark brown fine sandy silty CLAY (stiff to very stiff)
	Grades with some gravel and trace organics
	Grades to include light brown sand and clayey sand lenses
SP SM	Gray fine to coarse SAND with silt(very dense)
	Grades with less silt (dense)
CL	Olive-gray to gray silty CLAY with trace shell fragments

Boring completed to a depth of 51-1/2 feet on March 7, 1995
Boring backfilled with cement/bentonite slurry upon completion.

LOG OF BORING

PROPOSED SEISMIC RETROFIT

BUILDINGS 503 & 505

For Rockwell International

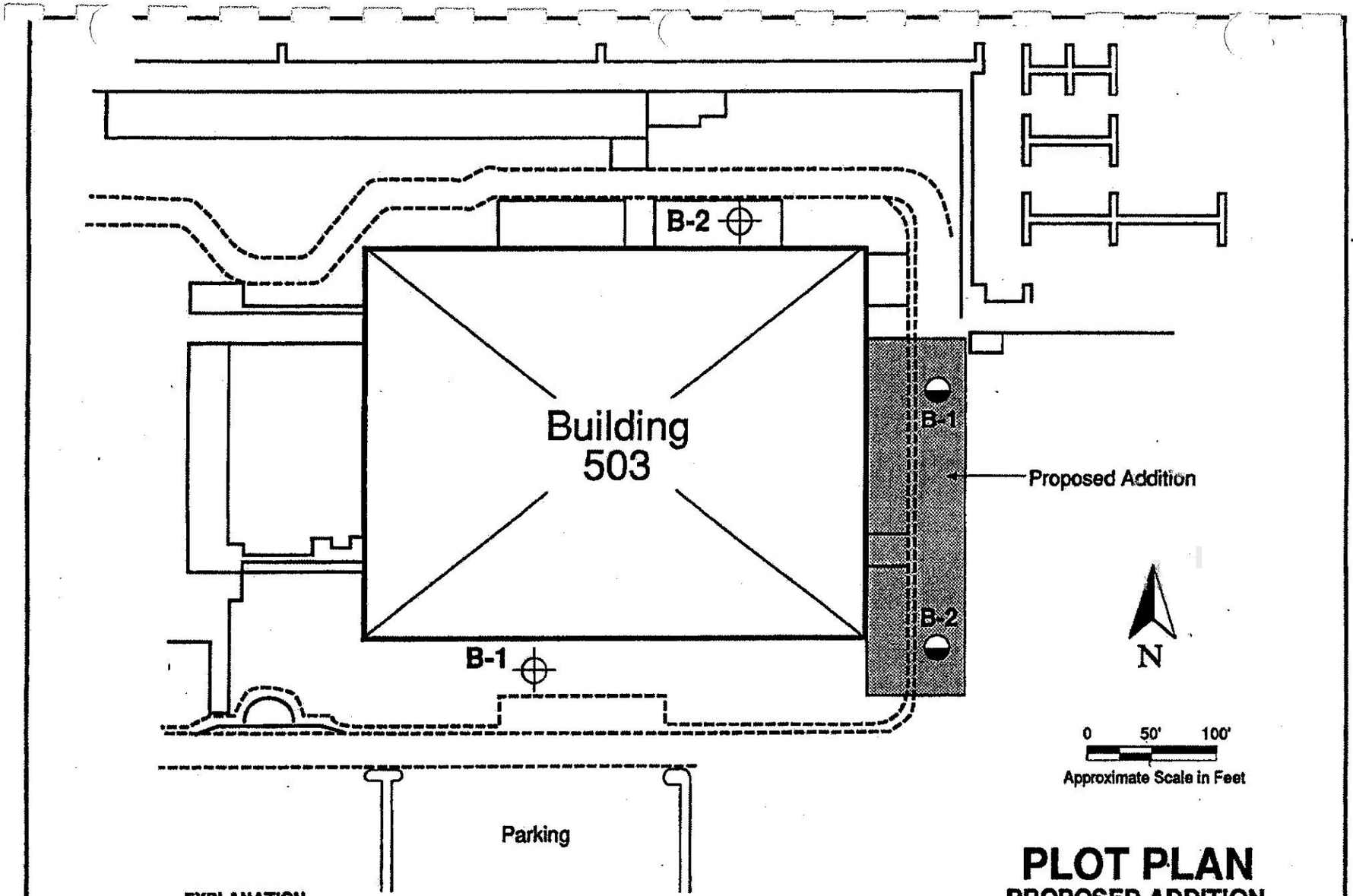
Dames & Moore
PLATE 12

APPENDIX B

PREVIOUS LOG OF BORING
(Dames & Moore 1996 Investigation)

APPENDIX B

PREVIOUS LOG OF BORING
(Dames & Moore 1996 Investigation)



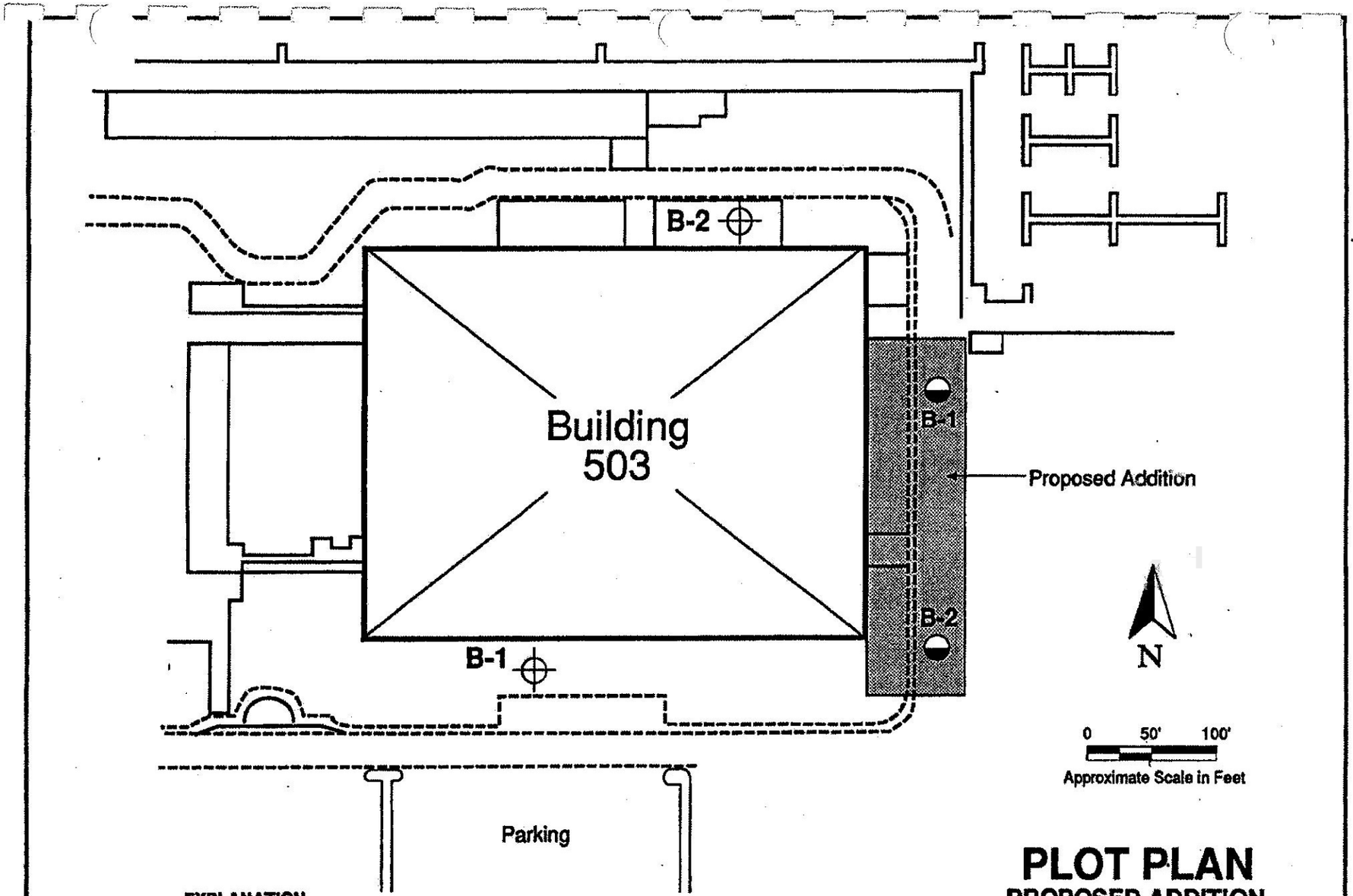
PLOT PLAN

PROPOSED ADDITION
BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International

Dames & Moore
PLATE 2

SyQB



PLOT PLAN

PROPOSED ADDITION
BUILDING 503
NEWPORT BEACH, CALIFORNIA

For Rockwell International

Dames & Moore
PLATE 2

SyQB

BORING B- 1

DEPTH IN FEET	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT SAMPLE TYPE	SYMBOL	DESCRIPTION
0											SM	4-inches asphaltic concrete
								19		18 Bk	CL	Brownish yellow silty gravelly fine SAND [Fill]
												Brown fine to medium sandy silty CLAY (Stiff to very stiff) [Fill]
5				UC		1000		21	101	26		Grades gray
								16		15		Grades yellowish red
											SM	Dark gray silty clayey fine to coarse SAND (Medium dense) [Fill]
10	SL -200 (42)	47	27	UC		2500		13	124	48	CL	Yellowish red silty fine to coarse sandy CLAY (Stiff)
								14		25		Grades with less medium to coarse sand
15	CORR -200 (6)							6	99	48	SM SP	Yellowish red to brownish yellow fine to medium SAND with silt (Dense)
												Grades with sandy clay lenses
20	CORR -200 (82)							8		36	CL	Yellowish red silty CLAY (Very stiff)
								26	95	70	SM	Brown to olive gray silty fine SAND (Dense)
25								23		29	CL	Greenish gray silty CLAY (Very stiff)
30	-200 (31)							21	99	70	SM	Gray silty fine SAND (Dense)
35	-200 (39)							22	102	75	ML	Gray and brownish yellow clayey fine sandy SILT (Hard)
40	-200 (94)							31		40		Grades with more clay
45	-200 (9)							11	91	100/4"	SM SP	Gray fine SAND with silt (Very dense)
50								13		55/6"		
55								14	92	100/6"		Grades with medium to coarse sand
60	-200 (5)							4		100/6"		
65												
70												

Boring completed to a depth of 60 1/2 feet on March 26, 1996.
Boring grouted upon completion with cement-bentonite slurry and resurfaced.

LOG OF BORING -

PROPOSED ADDITION
BUILDING 503
For Rockwell International

Dames & Moore
Plate 4

BORING B- 1

DEPTH IN FEET	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT SAMPLE TYPE	SYMBOL	DESCRIPTION
0											SM	4-inches asphaltic concrete
								19		18 Bk	CL	Brownish yellow silty gravelly fine SAND [Fill]
												Brown fine to medium sandy silty CLAY (Stiff to very stiff) [Fill]
5				UC		1000		21	101	26		Grades gray
								16		15		Grades yellowish red
											SM	Dark gray silty clayey fine to coarse SAND (Medium dense) [Fill]
10	SL -200 (42)	47	27	UC		2500		13	124	48	CL	Yellowish red silty fine to coarse sandy CLAY (Stiff)
								14		25		Grades with less medium to coarse sand
15	CORR -200 (6)							6	99	48	SM SP	Yellowish red to brownish yellow fine to medium SAND with silt (Dense)
												Grades with sandy clay lenses
20	CORR -200 (82)							8		36	CL	Yellowish red silty CLAY (Very stiff)
								26	95	70	SM	Brown to olive gray silty fine SAND (Dense)
25								23		29	CL	Greenish gray silty CLAY (Very stiff)
30	-200 (31)							21	99	70	SM	Gray silty fine SAND (Dense)
35	-200 (39)							22	102	75	ML	Gray and brownish yellow clayey fine sandy SILT (Hard)
40	-200 (94)							31		40		Grades with more clay
45	-200 (9)							11	91	100/4"	SM SP	Gray fine SAND with silt (Very dense)
50								13		55/6"		
55								14	92	100/6"		Grades with medium to coarse sand
60	-200 (5)							4		100/6"		
65												
70												

Boring completed to a depth of 60 1/2 feet on March 26, 1996.
Boring grouted upon completion with cement-bentonite slurry and resurfaced.

LOG OF BORING -

PROPOSED ADDITION
BUILDING 503
For Rockwell International

Dames & Moore
Plate 4

BORING B-2

DEPTH IN FEET	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT	SAMPLE TYPE
0											
	CORR EI (75)							22		35	
5								20		Bk	
				UC		1770		17	111	22	
										42	
10		37	21					17		28	
	SL			UC		7240		15	118	120	
15	CORR							17		72	
20	CON			UC		6125		21	110	100/6"	
	-200 (66)							15		69	
25	CON							12	120	95	
30								33	91	74	
35								37		36	
40								35	89	105	
45	-200 (26)							29		75/6"	
50								24		175	
55											
60											
65											
70											

SYMBOL	DESCRIPTION
GM	4 inches asphaltic concrete
CL	6 inches Brown fine sandy silty fine to coarse GRAVEL (Base)
	Brown, dark brown, and dark gray fine sandy silty CLAY (Very stiff) [Fill] Grades with silty sand lenses and trace organics
CL	Brown to yellowish red fine to coarse sandy silty CLAY (Hard)
	Grades brown
CL	Brownish yellow silty fine to medium sandy CLAY (Hard) Grades light brown and light gray with coarse sand
CL	Greenish gray and brownish yellow silty CLAY with occasional sand lense (Hard)
SM	Gray silty fine SAND with shells (Very dense)

Boring completed to a depth of 51 1/2 feet on March 26, 1996.
Boring backfilled upon completion with cement-bentonite slurry and resurfaced.

LOG OF BORING

PROPOSED ADDITION

BUILDING 503

For Rockwell International

Dames & Moore

Plate 5

BORING B-2

DEPTH IN FEET	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS: LIQUID LIMIT (%)	ATTERBERG LIMITS: PLASTICITY INDEX (%)	STRENGTH TEST DATA: TYPE OF TEST	STRENGTH TEST DATA: NORMAL OR CONFINING PRESSURE (PSF)	STRENGTH TEST DATA: SHEAR STRENGTH (PSF)	STRENGTH TEST DATA: DEVIATOR STRESS (PSF)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	BLOWS/FOOT	SAMPLE TYPE
0											
	CORR EI (75)							22		35	
5								20		Bk	
				UC		1770		17	111	22	
										42	
10		37	21					17		28	
	SL			UC		7240		15	118	120	
15	CORR							17		72	
20	CON			UC		6125		21	110	100/6"	
	-200 (66)							15		69	
25	CON							12	120	95	
30								33	91	74	
35								37		36	
40								35	89	105	
45	-200 (26)							29		75/6"	
50								24		175	
55											
60											
65											
70											

SYMBOL	DESCRIPTION
GM	4 inches asphaltic concrete
CL	6 inches Brown fine sandy silty fine to coarse GRAVEL (Base)
	Brown, dark brown, and dark gray fine sandy silty CLAY (Very stiff) [Fill] Grades with silty sand lenses and trace organics
CL	Brown to yellowish red fine to coarse sandy silty CLAY (Hard)
	Grades brown
CL	Brownish yellow silty fine to medium sandy CLAY (Hard) Grades light brown and light gray with coarse sand
CL	Greenish gray and brownish yellow silty CLAY with occasional sand lense (Hard)
SM	Gray silty fine SAND with shells (Very dense)

Boring completed to a depth of 51 1/2 feet on March 26, 1996.
Boring backfilled upon completion with cement-bentonite slurry and resurfaced.

LOG OF BORING

PROPOSED ADDITION

BUILDING 503

For Rockwell International

Dames & Moore

Plate 5

KEY TO LOG OF BORINGS

SAMPLE TYPES

45 — HAMMER BLOWS PER FOOT OF PENETRATION

■ INDICATES DAMES & MOORE UNDISTURBED SAMPLE

☒ INDICATES DISTURBED OR BULK SAMPLE

◪ INDICATES A STANDARD PENETRATION TEST

DAMES & MOORE AND SPT SAMPLERS DRIVEN USING A 140-POUND HAMMER DROPPING 30-INCHES

LABORATORY TESTS

UC	UNCONFINED COMPRESSION TEST
CORR	CORROSIVITY TEST
-200	PERCENT PASSING THE NO.200 SIEVE (Test Results in Parentheses)
CON	CONSOLIDATION TEST
SL	SWELL LOAD TEST
EI	EXPANSION INDEX (Test Result in Parentheses)

PROPOSED ADDITION
BUILDING 503
For Rockwell International

Dames & Moore
Plate 6 - Continued

KEY TO LOG OF BORINGS

SAMPLE TYPES

45 — HAMMER BLOWS PER FOOT OF PENETRATION

■ INDICATES DAMES & MOORE UNDISTURBED SAMPLE

☒ INDICATES DISTURBED OR BULK SAMPLE

◪ INDICATES A STANDARD PENETRATION TEST

DAMES & MOORE AND SPT SAMPLERS DRIVEN USING A 140-POUND HAMMER DROPPING 30-INCHES

LABORATORY TESTS

UC	UNCONFINED COMPRESSION TEST
CORR	CORROSIVITY TEST
-200	PERCENT PASSING THE NO.200 SIEVE (Test Results in Parentheses)
CON	CONSOLIDATION TEST
SL	SWELL LOAD TEST
EI	EXPANSION INDEX (Test Result in Parentheses)

PROPOSED ADDITION
BUILDING 503
For Rockwell International

Dames & Moore
Plate 6 - Continued

APPENDIX C

PREVIOUS LOG OF BORINGS
(MHLA 1967 Investigation)

APPENDIX C

PREVIOUS LOG OF BORINGS
(MHLA 1967 Investigation)

LOG OF BORING NO 503

DATE DRILLED: 2/28/67
EQUIPMENT USED: Bucket Auger
ELEV. OF SURFACE: 45.1

Depth in Feet	Samples	Blows per Foot	DESCRIPTION OF SOILS — CLASSIFICATION	Color	Moisture	Consistency	Dry Unit Weight lb. per cu. ft.	COHESION ○ OR SHEAR RES. ○ KIPS PER SQUARE FOOT / MOISTURE PERCENT DRY WT.
								Saturated drained
	2		CLAY, silty (15-20-65)39 (plastic)	dark brown	moist	mod.	102	
	5		(16-22-62)40	brown		stiff	106	
-5-								
	13		SILT, clayey (stiff plastic)	light brown		firm	94	
-10-	17		very clayey calcareous concretions (stiff plastic)				110	
-15-	8		calcareous concretions	grey & brown			95	
-20-	15		SAND, fine, very silty	gray		comp	98	
-25-	30		SAND, fine, clean	light gray	GWS		95	
-30-	50		abundant shells	gray blue			107	
-35-	13		CLAY, very silty, scattered shells (stiff plastic)	gray		stiff	89	
-40-	19			gray & brown			85	
			End of Boring @ 40'					
			(15-20-65)39 indicates- 15% Sand 20% Silt 65% Clay 39% Colloids					

GWS- Ground Water Surface encountered during drilling

Collins Radio Company- Newport Beach, California

PLATE NO. B-3

MAUPSEW HOWE LOCKWOOD & ASSOC.

FILE NO. 5047-F-1

101-5004-750 P-18

LOG OF BORING NO 503

DATE DRILLED: 2/28/67
EQUIPMENT USED: Bucket Auger
ELEV. OF SURFACE: 45.1

Depth in Feet	Samples	Blows per Foot	DESCRIPTION OF SOILS — CLASSIFICATION	Color	Moisture	Consistency	Dry Unit Weight lb. per cu. ft.	COHESION ○ OR SHEAR RES. ○ KIPS PER SQUARE FOOT / MOISTURE PERCENT DRY WT.
								Saturated drained
	2		CLAY, silty (15-20-65)39 (plastic)	dark brown	moist	mod.	102	
	5		(16-22-62)40	brown		stiff	106	
-5-								
	13		SILT, clayey (stiff plastic)	light brown		firm	94	
-10-	17		very clayey calcareous concretions (stiff plastic)				110	
-15-	8		calcareous concretions	grey & brown			95	
-20-	15		SAND, fine, very silty	gray		comp	98	
-25-	30		SAND, fine, clean	light gray	GWS		95	
-30-	50		abundant shells	gray blue			107	
-35-	13		CLAY, very silty, scattered shells (stiff plastic)	gray		stiff	89	
-40-	19			gray & brown			85	
			End of Boring @ 40'					
			(15-20-65)39 indicates- 15% Sand 20% Silt 65% Clay 39% Colloids					

GWS- Ground Water Surface encountered during drilling

Collins Radio Company- Newport Beach, California

PLATE NO. B-3

MAUPSEW HOWE LOCKWOOD & ASSOC.

FILE NO. 5047-F-1

101-5004-750 P-18

LOG OF BORING NO 504

DATE DRILLED: 2/28/67
EQUIPMENT USED: Bucket Auger

ELEV. OF SURFACE: 40.3

Depth in Feet	Samples	Blows Per Foot	DESCRIPTION OF SOILS — CLASSIFICATION	Color	Moisture	Consistency	Dry Unit Wt. lb. per cu. ft.	COHESION ○ OR SHEAR RES. ● KIPS PER SQUARE FOOT / MOISTURE PERCENT DRY/WT.
								1 2 3 4 5 — 10 20 30 40 50 — Saturated & drained
		2	SAND, fine, silty	dark brown	moist	mod. loose	115	
			CLAY, silty, (plastic)			mod. stiff	114	
-5-		13 15	(stiff plastic)	brown to light brown		stiff	104	
		19					117	
-10-		8					108	
		15	silt nodules	gray	GWS(2)		106	
-20-		3	scattered shells					
			SILT sandy	blue	GWS	firm	108	
-25-	Caving		SAND, fine, silty fine to coarse, clean	gray	(1)	comp		
		20	CLAY, silty			stiff	92	
-30-			(stiff plastic)	gray brown				
		19	scattered shells	dark gray			83	
-35-								
		17					77	
-40-			End of Boring @ 40'					

(1) GWS [illegible] encountered (2) after 16 hours

Collins Radio Company - Newport Beach, California

PLATE NO. B-4

MACKSETH HOWE LOCKWOOD & ASSOC.

FILE NO. 3347-F

101-5004-TSC TCP-19

LOG OF BORING NO 504

DATE DRILLED: 2/28/67
EQUIPMENT USED: Bucket Auger

ELEV. OF SURFACE: 40.3

Depth in Feet	Samples	Blows Per Foot	DESCRIPTION OF SOILS — CLASSIFICATION	Color	Moisture	Consistency	Dry Unit Wt. lb. per cu. ft.	COHESION ○ OR SHEAR RES. ● KIPS PER SQUARE FOOT / MOISTURE PERCENT DRY/WT.
								1 2 3 4 5 — 10 20 30 40 50 — Saturated & drained
		2	SAND, fine, silty	dark brown	moist	mod. loose	115	
			CLAY, silty, (plastic)			mod. stiff	114	
-5-		13 15	(stiff plastic)	brown to light brown		stiff	104	
		19					117	
-10-		8					108	
		15	silt nodules	gray	GWS(2)		106	
-20-		3	scattered shells					
			SILT sandy	blue	GWS	firm	108	
-25-	Caving		SAND, fine, silty fine to coarse, clean	gray	(1)	comp		
		20	CLAY, silty			stiff	92	
-30-			(stiff plastic)	gray brown				
		19	scattered shells	dark gray			83	
-35-								
		17					77	
-40-			End of Boring @ 40'					

(1) GWS [illegible] encountered (2) after 16 hours

Collins Radio Company - Newport Beach, California

PLATE NO. B-4

MACKSETH HOWE LOCKWOOD & ASSOC.

FILE NO. 3347-F

101-5004-TSC TCP-19

LOG OF BORING NO 505

DATE DRILLED: 2/20/67
EQUIPMENT USED: Bucket Auger

ELEV. OF SURFACE: 37.6

Depth in Feet	Samples	Blows Per Foot	DESCRIPTION OF SOILS — CLASSIFICATION	Color	Moisture	Consistency	Dry Unit Weight lb. per cu. ft.	COHESION ○ OR SHEAR RES. ○ KIPS PER SQUARE FOOT / MOISTURE-PERCENT DRY WT.
								1 2 3 4 / Δ 10 20 30 40 50
		2	CLAY, silty (plastic)	dark brown	moist	mod. stiff	114	Saturated & drained
5		8	(stiff plastic)				114	
		19		gray brown		stiff	116	
10		19					109	
				tan & white				
15		13	SILT, clayey (stiff plastic)	gray & brown		firm	102	
			CLAY, sandy	gray		stiff	108	
20		12	SAND, fine, silty		* GWS	comp		
25		12	SILT (stiff plastic)	gray green		firm	89	
30		11	very clayey (stiff plastic)			stiff	86	
		18		brown			89	
35			SAND, fine, clean	gray		comp	108	
40		38	End of Boring @ 40'					

* GWS - at completion of boring

Collins Radio Company - Newport Beach, California

PLATE NO. B-5

MAURSETH HOWE LOCKWOOD & ASSOC.

FILE NO. 3347-F-1

101-5004-750 TCL P-20

LOG OF BORING NO 505

DATE DRILLED: 2/20/67
EQUIPMENT USED: Bucket Auger

ELEV. OF SURFACE: 37.6

Depth in Feet	Samples	Blows Per Foot	DESCRIPTION OF SOILS — CLASSIFICATION	Color	Moisture	Consistency	Dry Unit Weight lb. per cu. ft.	COHESION ○ OR SHEAR RES. ○ KIPS PER SQUARE FOOT / MOISTURE-PERCENT DRY WT.
								1 2 3 4 / Δ 10 20 30 40 50
		2	CLAY, silty (plastic)	dark brown	moist	mod. stiff	114	Saturated & drained
5		8	(stiff plastic)				114	
		19		gray brown		stiff	116	
10		19					109	
				tan & white				
15		13	SILT, clayey (stiff plastic)	gray & brown		firm	102	
			CLAY, sandy	gray		stiff	108	
20		12	SAND, fine, silty		* GWS	comp		
25		12	SILT (stiff plastic)	gray green		firm	89	
30		11	very clayey (stiff plastic)			stiff	86	
		18		brown			89	
35			SAND, fine, clean	gray		comp	108	
40		38	End of Boring @ 40'					

* GWS - at completion of boring

Collins Radio Company - Newport Beach, California

PLATE NO. B-5

MAURSETH HOWE LOCKWOOD & ASSOC.

FILE NO. 3347-F-1

101-5004-750 TCL P-20

LOG OF BORING NO 507

DATE DRILLED: 3/1/67
EQUIPMENT USED: Bucket Auger

ELEV. OF SURFACE: 44.9

Depth in Feet	Samples	Blows per 1 foot	DESCRIPTION OF SOILS — CLASSIFICATION	Color	Moisture	Consistency	Dry Unit Weight lb. per cu. ft.	COHESION ○ OR SHEAR RES. ● KIPS PER SQUARE FOOT / MOISTURE PERCENT DRY WT.
0		2	CLAY, silty (soft plastic)	dark brown	moist	mod. soft	107	Saturated & drained
		3	(plastic)			mod. stiff	103	
5		3					94	
		9	SILT, sandy	tan		firm	104	
10								
		17	SAND, fine, silty			comp	103	
15			SILT			firm		
			CLAY, silty			stiff		
		17	SAND, fine, clean very silty			comp	98	
20								
		11	CLAY, silty (stiff plastic)	gray blue		stiff	111	
25			SAND, fine, silty clean		* GWS	comp	96	
		45						
30			End of Boring @ 30'					

*GWS - at completion of boring

Collins Radio Company - Newport Beach, California

MAURSETH HOWE LOCKWOOD & ASSOC.

PLATE NO. B-7

FILE NO. 3347-F 1

101-5604-7507 P-21

LOG OF BORING NO 507

DATE DRILLED: 3/1/67
EQUIPMENT USED: Bucket Auger

ELEV. OF SURFACE: 44.9

Depth in Feet	Samples	Blows per 1 foot	DESCRIPTION OF SOILS — CLASSIFICATION	Color	Moisture	Consistency	Dry Unit Weight lb. per cu. ft.	COHESION ○ OR SHEAR RES. ● KIPS PER SQUARE FOOT / MOISTURE PERCENT DRY WT.
0		2	CLAY, silty (soft plastic)	dark brown	moist	mod. soft	107	Saturated & drained
		3	(plastic)			mod. stiff	103	
5		3					94	
		9	SILT, sandy	tan		firm	104	
10								
		17	SAND, fine, silty			comp	103	
15			SILT			firm		
			CLAY, silty			stiff		
		17	SAND, fine, clean very silty			comp	98	
20								
		11	CLAY, silty (stiff plastic)	gray blue		stiff	111	
25			SAND, fine, silty clean		* GWS	comp	96	
		45						
30			End of Boring @ 30'					

*GWS - at completion of boring

Collins Radio Company - Newport Beach, California

MAURSETH HOWE LOCKWOOD & ASSOC.

PLATE NO. B-7

FILE NO. 3347-F 1

101-5604-7507 P-21

LOG OF BORING NO 506

DATE DRILLED: 3/1/67
EQUIPMENT USED: Bucket Auger
ELEV. OF SURFACE: 45.5

Depth in Feet	Samples	Blows Per Foot	DESCRIPTION OF SOILS — CLASSIFICATION	Color	Moisture	Consistency	Dry Unit Weight lb. per cu. ft.	COHESION C OR SHEAR RES. C KIPS PER SQUARE FOOT / MOISTURE PERCENT DRY WT
								1 2 3 4 5 / Δ 10 20 30 40 50
								Saturated & drained
		2	CLAY, silty (soft plastic)	dark	moist	mod. soft	106	
		20	SAND, fine, clayey	brown		comp	112	
-5-		3	SILT, sandy			firm	92	
			SAND, fine, silty			comp	101	
-10-		11	CLAY, silty calcareous concretions	light brown		stiff	95	
-15-		6	SILT	brown		firm		
			CLAY, silty (stiff plastic)	gray & brown		stiff	104	
-20-		11	SAND, fine, silty	gray		comp	107	
-25-		11	SILT, sandy		* GWS	firm		
			CLAY, silty					
			SILT, sandy					
-30-		45	SAND, fine to coarse, clean		—	comp	98	
			End of Boring @ 30'					

*GWS - at completion of boring

Collins Radio Company - Newport Beach, California

PLATE NO. B-6

MAURSETH HOWE LOCKWOOD & ASSOC.

FILE NO. 3347-F

101-5004-750T P-22

LOG OF BORING NO 506

DATE DRILLED: 3/1/67
EQUIPMENT USED: Bucket Auger
ELEV. OF SURFACE: 45.5

Depth in Feet	Samples	Blows Per Foot	DESCRIPTION OF SOILS — CLASSIFICATION	Color	Moisture	Consistency	Dry Unit Weight lb. per cu. ft.	COHESION C OR SHEAR RES. C KIPS PER SQUARE FOOT / MOISTURE PERCENT DRY WT
								1 2 3 4 5 / Δ 10 20 30 40 50
								Saturated & drained
		2	CLAY, silty (soft plastic)	dark	moist	mod. soft	106	
		20	SAND, fine, clayey	brown		comp	112	
-5-		3	SILT, sandy			firm	92	
			SAND, fine, silty			comp	101	
-10-		11	CLAY, silty calcareous concretions	light brown		stiff	95	
-15-		6	SILT	brown		firm		
			CLAY, silty (stiff plastic)	gray & brown		stiff	104	
-20-		11	SAND, fine, silty	gray		comp	107	
-25-		11	SILT, sandy		* GWS	firm		
			CLAY, silty					
			SILT, sandy					
-30-		45	SAND, fine to coarse, clean		—	comp	98	
			End of Boring @ 30'					

*GWS - at completion of boring

Collins Radio Company - Newport Beach, California

PLATE NO. B-6

MAURSETH HOWE LOCKWOOD & ASSOC.

FILE NO. 3347-F

101-5004-750T P-22

LOG OF BORING NO 508

DATE DRILLED: 2/28/67
EQUIPMENT USED: Bucket Auger

ELEV. OF SURFACE: 46.3

Depth in Feet	Samples	Blows per foot	DESCRIPTION OF SOILS — CLASSIFICATION	Color	Moisture	Consistency	Unit Dry Weight lb. per cu. ft.	COHESION ○ OR SHEAR RES. ○ KIPS PER SQUARE FOOT; MOISTURE - PERCENT DRY WT.
								Δ 1.0 2.0 3.0 4.0 5.0 ; Δ 10 20 30 40 50
								Scattered & drained
-5		11	CLAY, silty (plastic) calcareous concretions (stiff plastic)	dark brown & brown	moist	Incr. stiff stiff	103 100	
		15						
-10		13	SAND, silty	light brown		comp	105 95	
		12						
-15		8	CLAY, silty (stiff plastic)	brown & tan		stiff	107	
-20			SILT, clayey	tan		firm	105	
		15	CLAY, silty	brown		stiff	108	
			SAND, fine, clean	brown & tan		comp		
-25		13	SILT	gray & brown	* GWS	firm comp	99	
			SAND, fine, silty					
	Cav.		SAND, med. to coarse	tan				
-30		8	CLAY, silty (stiff plastic) scattered shells	gray		stiff	91	
-35		18					91	
-40		8					92	
			End of Boring @ 40'					

*GWS - at completion of boring

Collins Radio Company - Newport Beach, California

PLATE NO. B-8

MAURSETH HOWE LOCKWOOD & ASSOC.

FILE NO. 334-J

101-5004-750 T C P 23

LOG OF BORING NO 508

DATE DRILLED: 2/28/67
EQUIPMENT USED: Bucket Auger

ELEV. OF SURFACE: 46.3

Depth in Feet	Samples	Blows per foot	DESCRIPTION OF SOILS — CLASSIFICATION	Color	Moisture	Consistency	Unit Dry Weight lb. per cu. ft.	COHESION ○ OR SHEAR RES. ○ KIPS PER SQUARE FOOT; MOISTURE - PERCENT DRY WT.
								Δ 1.0 2.0 3.0 4.0 5.0 ; Δ 10 20 30 40 50
								Scattered & drained
-5		11	CLAY, silty (plastic) calcareous concretions (stiff plastic)	dark brown & brown	moist	Incr. stiff stiff	103 100	
		15						
-10		13	SAND, silty	light brown		comp	105 95	
		12						
-15		8	CLAY, silty (stiff plastic)	brown & tan		stiff	107	
-20			SILT, clayey	tan		firm	105	
		15	CLAY, silty	brown		stiff	108	
			SAND, fine, clean	brown & tan		comp		
-25		13	SILT	gray & brown	* GWS	firm comp	99	
			SAND, fine, silty					
	Cav.		SAND, med. to coarse	tan				
-30		8	CLAY, silty (stiff plastic) scattered shells	gray		stiff	91	
-35		18					91	
-40		8					92	
			End of Boring @ 40'					

*GWS - at completion of boring

Collins Radio Company - Newport Beach, California

PLATE NO. B-8

MAURSETH HOWE LOCKWOOD & ASSOC.

FILE NO. 334-J

101-5004-750 T C P 23

LOG OF BORING NO 509

DATE DRILLED: Feb. 20, 1967
EQUIPMENT USED: Bucket Auger
ELEV. OF SURFACE: 48.0

Depth in Feet	Blows per 1 foot	DESCRIPTION OF SOILS — CLASSIFICATION	Color	Moisture	Consistency	Unit Dry Weight lb. per cu.ft.
	2	Clay, silty (soft plastic)	brown	moist	mod soft	104
-5-	3	SILT, clayey (plastic)	brown & tan		mod. firm	93
	13	(stiff plastic)			firm	99
		SAND, fine, very silty	tan		Comp	100
-10-	11					
		SILT, clayey	brown to tan		firm	96
-15-	8	(stiff plastic)				
						94
-20-	8					
		SAND, fine, silty	tan		comp	
-25-	5	SILT, sandy	gray		firm	100
				slight seep		97
-30-	19	very clayey	gray brown	* GWS	stiff	91
-35-	12	(stiff plastic)				
						86
-40-	21	End of boring @ 40'				

COHESION ○ OR SHEAR RES. ◇ KIPS PER SQUARE FOOT
1 2 3 4
MOISTURE PERCENT DRY WT.
△ 10 20 30 40
saturated & drained
saturated & undrained

*GWS - after 16 hours

COLLINS RADIO CORP. NEWPORT BEACH — PLATE NO. B-9

MAURSETH HOWE LOCKWOOD & ASSOC. — FILE NO. 3347

101-5004-7501 P-24

LOG OF BORING NO 509

DATE DRILLED: Feb. 20, 1967
EQUIPMENT USED: Bucket Auger
ELEV. OF SURFACE: 48.0

Depth in Feet	Blows per 1 foot	DESCRIPTION OF SOILS — CLASSIFICATION	Color	Moisture	Consistency	Unit Dry Weight lb. per cu.ft.
	2	Clay, silty (soft plastic)	brown	moist	mod soft	104
-5-	3	SILT, clayey (plastic)	brown & tan		mod. firm	93
	13	(stiff plastic)			firm	99
		SAND, fine, very silty	tan		Comp	100
-10-	11					
		SILT, clayey	brown to tan		firm	96
-15-	8	(stiff plastic)				
						94
-20-	8					
		SAND, fine, silty	tan		comp	
-25-	5	SILT, sandy	gray		firm	100
				slight seep		97
-30-	19	very clayey	gray brown	* GWS	stiff	91
-35-	12	(stiff plastic)				
						86
-40-	21	End of boring @ 40'				

COHESION ○ OR SHEAR RES. ◇ KIPS PER SQUARE FOOT
1 2 3 4
MOISTURE PERCENT DRY WT.
△ 10 20 30 40
saturated & drained
saturated & undrained

*GWS - after 16 hours

COLLINS RADIO CORP. NEWPORT BEACH — PLATE NO. B-9

MAURSETH HOWE LOCKWOOD & ASSOC. — FILE NO. 3347

101-5004-7501 P-24

LOG OF BORING NO 510

DATE DRILLED: Feb. 20, 1967
EQUIPMENT USED: Bucekt Auger
ELEV. OF SURFACE: 46.3

Depth in Feet	Samples	Blows / Foot	DESCRIPTION OF SOILS — CLASSIFICATION	Color	Moisture	Consistency	Dry Unit Weight lb. per cu. ft.	COHESION ○ OR SHEAR RES. ○ KIPS PER SQUARE FOOT (1 2 3 4) MOISTURE PERCENT DRY/WT (10 20 30 40)
								Saturated & drained
2			CLAY, silty, piece of wood	mottled	moist	mod soft	100	
5	2	FILL	sand lenses (soft plastic)				102	
	20						107	
			CLAY, silty (stiff plastic) sandy with depth	brown to light brown		stiff	109	
10	18							
	28				GWS (2)		119	
15			SAND, fine, clayey, silty	light brown		comp	119	
	20							
20			CLAY, silty	brown		stiff	109	
	6		SAND, fine, silty, slightly clayey			comp		
25				gray			109	
	19							
30			SAND, fine to med. clean					
			SAND, fine, very silty		GWS (1)		106	
	38		SAND, fine, clean					
35								
			SILT, clayey (stiff plastic)	gray & gray		firm	89	
40	18							
			End of boring @ 40'					

(1) Ground water surface at completion of boring (2) after 24 hours

COLLINS RADIO, NEWPORT BEACH — PLATE NO. B-10

MAURSETH HOWE LOCKWOOD & ASSOC. — FILE NO. 3347-E-1

101-5004-750-C P-25